DOCUMENT RESUME

ED 203 672 FL 012 348

AUTHOR Ambrose, John
TITLE Micro-Scale Language Mapping: An Experiment in Wales and Brittany. Discussion Papers in Geolinguistics 2.
INSTITUTION North Staffordshire Polytechnic (England). Dept. of Geography and Sociology.
PUB DATE 80
NOTE 53p.
AVAILABLE FROM North Staffordshire Polytechnic, Department of Geography, Stafford, ST18 0AD, United Kingdom ($2.50).

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Area Studies; Cartography; Census Figures; *Dialect Studies; Field Studies; Geographic Regions; Indo European Languages; *Language Usage; Linguistic Borrowing; *Maps; Native Speakers; Regional Dialects; *Welsh
IDENTIFIERS *Breton; France (Brittany); Geolinguistics; *Language Shift; Wales

ABSTRACT

The present study is an experiment to investigate the effect which the availability of detailed information on aspects of language distribution may have upon the understanding of processes contributing to language shift. It is an attempt to remedy the deficiencies of official census statistics by an experimental field investigation. Two sections of Wales and Brittany, both on the borders of the Welsh and Breton language areas, were chosen for the study because it was thought that the geographical aspects of language shift might be more apparent there than elsewhere. The discussion focuses on four points: (1) use of available census information; (2) a doorstep survey on language potential and the production of language potential maps; (3) the results of a speaking frequency survey and the frequency maps; and (4) a survey of the variety of situations in which Welsh or Breton might be employed and the mapping of responses to see if there is a correlation between language usage and particular locales or circumstances. The discussion of the study calls attention to the need of more micro-scale geolinguistic studies. (AMH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED203672

DISCUSSION PAPERS in GEOLINGUISTICS 2

MICRO-SCALE LANGUAGE MAPPING : AN EXPERIMENT IN WALES AND BRITTANY

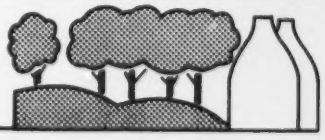
JOHN AMBROSE

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Colin H. Williams
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

NORTH STAFFORDSHIRE POLYTECHNIC
DEPARTMENT OF
GEOGRAPHY AND SOCIOLOGY



FL 012 348

DISCUSSION PAPERS IN GEOLINGUISTICS

EDITOR : COLIN H WILLIAMS

Editorial Board

John Ambrose	North Staffordshire Polytechnic
Harold Carter	University College of Wales, Aberystwyth
Don Cartwright	University of Western Ontario
Einar Haugen	Harvard University
Thomas Lundén	University of Stockholm
William Mackey	Université Laval
W.T.R. Pryce	The Open University in Wales
Peter Trudgill	Reading University
Richard Wood	Southeast Missouri State University

Papers for consideration and general correspondence should be addressed to The Editor, Colin H. Williams, Department of Geography and Sociology, North Staffordshire Polytechnic, Stafford ST18 OAD, U.K . Subscription orders and enquiries should be sent to The General Editor, George Kay, at the same address.

MICRO-SCALE LANGUAGE MAPPING:

AN EXPERIMENT IN WALES AND BRITTANY

JOHN AMBROSE

While he was a Teaching Assistant in the Department of Geography, University of Glasgow, John Ambrose carried out research into changes affecting linguistic border zones in Wales and Brittany. Now a lecturer in Geography at the North Staffordshire Polytechnic, Stafford, he continues field-work in the two localities discussed in this paper.

DISCUSSION PAPERS IN GEOLINGUISTICS 2

NORTH STAFFORDSHIRE POLYTECHNIC 1980.

K-21-29

The individual as a subject of geolinguistic study:

In 1897 Jules Gilliéron bought his assistant, Edmond Edmont, a bicycle, and despatched him to gather the dialectological information from which the "Atlas Linguistique de la France" was compiled.[1] This incident, frequently quoted in writings on the history of linguistics, has a strong appeal for the present author and maybe also for many others who have been faced with the necessity of relying on linguistic data from sources other than their own fieldwork; the degree of self-sufficiency and flexibility which it implies, in the matter of data collection, are enviable in our less leisured and more expensive times. Most present-day geolinguists are instead obliged to use secondary sources such as the statistics provided by language censuses in many countries of the world, and while some of these sources succeed more than others when it comes to counting numbers of people able to speak a language, almost all fail to provide the reliable indicators of language use in practice which are required in order to understand processes affecting language change over time and space. Such indicators include, for example, the relative frequency of use of one language rather than another by individuals, or the variety of circumstances under which one theoretically co-available language may be used in preference to another.[2]

These data deficiencies are hardly surprising; variations in language use do not readily permit the systematic collection of reliable information. The copiousness of official language statistics has greatly increased, as also has the range of methods for their storage and processing, since the days of Gilliéron and Edmont, but it must be questioned whether there has been any significant advance in the comprehensiveness of the available information. As a case in point, the data on Welsh speaking

from the decennial Census of England and Wales, could be quoted.[3] They may still be seen as recording the "fait accompli" of language change rather than providing an effective aid to the analysis of processes contributing to that change. Some problems in the retrieval of such data will be examined shortly, particularly those concerning the necessity of disaggregating the information, both numerically and spatially, in order to study the linguistic behaviour of individuals. Further problems surround the units used by census-takers in Wales as a basis for the compilation and presentation of linguistic information. The mesh of parishes, wards and enumeration districts used is, as will be seen, the source of a considerable number of difficulties of procedure and interpretation.

In a spirit of some independence from such problems the present study was made. It is an experiment in the effect which the availability of detailed information on aspects of language distribution may have upon the understanding of processes contributing to language shift (which may be defined, for present purposes, as the progressive abandonment of one language in favour of another, for an increasing variety of uses, in an increasing number of contexts).[4] Two areas have been chosen for examination of the process: Welsh, in the border area of Shropshire, Clwyd and Powys, and Breton, in the area just west of Châtelaudren, Côtes-du-Nord (see figure 1). Both Welsh and Breton have, as the map indicates, undergone a gradual but almost relentless retreat in the face of pressure from English and French over the past thousand years, but more recently, because of the effects of improved transport and the advent of broadcasting, among other influences, there has been a tendency for a more general decay of the Welsh and Breton language areas in situ. A greater proportion of the Welsh and Breton speaking population

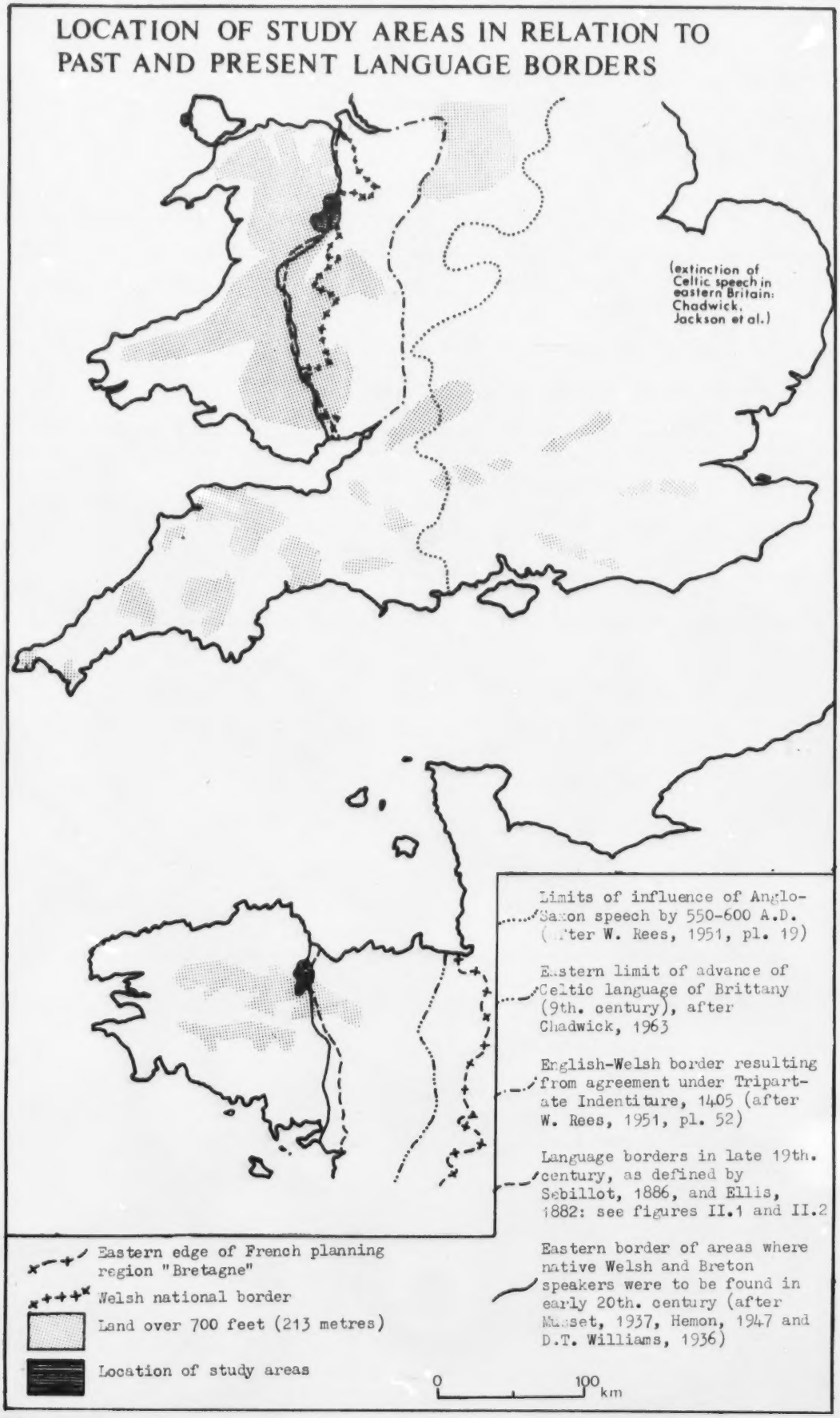

LOCATION OF STUDY AREAS IN RELATION TO PAST AND PRESENT LANGUAGE BORDERS
(extinction of Celtic speech in eastern Britain: Chadwick, Jackson et al.)
Limits of influence of Anglo-Saxon speech by 550-600 A.D. (after W. Rees, 1951, pl. 19)
Eastern limit of advance of Celtic language of Brittany (9th. century), after Chadwick, 1963
English-Welsh border resulting from agreement under Tripartate Indentiture, 1405 (after W. Rees, 1951, pl. 52)
Language borders in late 19th. century, as defined by Sebillot, 1886, and Ellis, 1882: see figures II.1 and II.2
Eastern border of areas where native Welsh and Breton speakers were to be found in early 20th. century (after Musset, 1937, Hemon, 1947 and D.T. Williams, 1936)
Eastern edge of French planning region "Bretagne"
Welsh national border
Land over 700 feet (213 metres)
Location of study areas
0
100 km

Figure 1

than ever before is bilingual, and therefore directly affected by the process of shift. The map shows that the study areas are situated almost directly on the borders of the Welsh and Breton language areas, and this choice of border zones is deliberate; there, more than anywhere else, it is conjectured, will geographical aspects of language shift be apparent. The problems of the bilingual individual may be accentuated in border areas, where every speaker's view of the relative roles of the languages at his disposal may be slightly different, depending upon his location in relation to some, possibly ill-defined, language-area border. The resultant lack of unanimity may affect confidence in one or other of the languages, influencing in turn the speaker's individual linguistic dexterity, adaptability or vocabulary development.

In short, a study of the complicated process of language shift is perhaps ideally undertaken at the scale of the individual. When a language is experiencing a growth in its influence, each one of its speakers may adopt the role of innovator, with the ability to set a precedent for the use of the language in some more adventurous, diverse or creative way. Similarly in time of decline, the individual speaker, even when constrained by the pressures of group conformity, has the power to initiate some use which contributes to a hastening of the process of shift. In the last instance, the decision to maintain or reject the use of a particular language in a given context rests with the individual. If this is accepted, then the impossibility of using most published language statistics for the close examination of individual linguistic behaviour should be viewed as more than a passing inconvenience; it is a fundamental problem for linguists wishing to make use of official language statistics, whether or not their approach happens to be geographical.

This stress on individual roles may be thought to pose problems for geographical study, especially if "geographical" is equated with "areal" or "regional" approaches, but there are several reasons why the present experiment should be a geographical one. First, influences which geographers have traditionally examined, such as accessibility (governed by such factors as topography), changing employment structures or the demographic characteristics of populations, lead to changing language patterns. Such influences have been examined in some detail for localities adjoining and including the Welsh area in particular, and have been of considerable help in setting the context of the present study.[5] A second motive for geographical examination is the suspicion that groupings of speakers in the landscape, in particular localities perhaps only a few hundred metres in extent, may be instrumental in permitting or prohibiting the continuance of minority language use as a part of everyday life. Such groupings may be expressed in a number of different ways - average densities of speakers, threshold numbers needed for viable speech communities, or clusters or cores of speakers within sufficient distance of each other to permit the regular communication and group self-recognition which are the basis of language use. Census data have enabled such concepts to be evolved at the national and regional scale for Wales.[6] Their much lesser use at the local scale is perhaps a reflection of the inappropriateness of the available data rather than of the inapplicability of such approaches at the micro-scale.

Other motives for the experimental mapping of language patterns have less precedent, particularly the attempt to produce detailed maps of patterns of language use in practice in addition to theoretical distributions as derived from information on numbers of people able to speak Welsh or Breton. The resultant product may not be susceptible of geographical interpretation; on the other hand, it may prove possible to point to localities

where language frequency (the proportion of an individual's conversation in Welsh or Breton) or language versatility (the variety of situations in which the two languages are used) either surpass or fail to reach the expected level, as derived from numeric distribution. Such areas may provide clues to the mechanisms of language shift and also suggest practical ways in which local planning policy may seek to counteract the less desirable aspects of language change.

Finally, as a motive for geographical study, it may be that speakers have an individual or communal "sense of place" which affects their willingness to use Welsh or Breton in various localities within the study areas. If it exists, this phenomenon appears to have been comparatively little studied. While, for example, considerable attention has been given to the idea of the "speaking locale", as typified by the home or the shop,[7] and while this aspect is clearly important, it may be just as important to know where any particular home or shop is in relation to the location of groups of speakers or to the language area at large.

For all of these reasons, if reasons are necessary, micro-geographical study can be useful in examining individual linguistic behaviour in areas undergoing a language shift. The gathering of the necessary detailed information is, however, a time-consuming task which is surrounded by a considerable number of practical difficulties, and which should not be undertaken lightly while any alternative existing source remains incompletely investigated. It may be that in the opening remarks the Census of England and Wales was dismissed rather too lightly as a precise source of information on the Welsh language. To discover exactly what degree of detail can be derived from census data, as well as some of the practical difficulties accompanying their use, an example will be quoted, based on the region of the Welsh Borderland surrounding and including the survey area on figure 1.

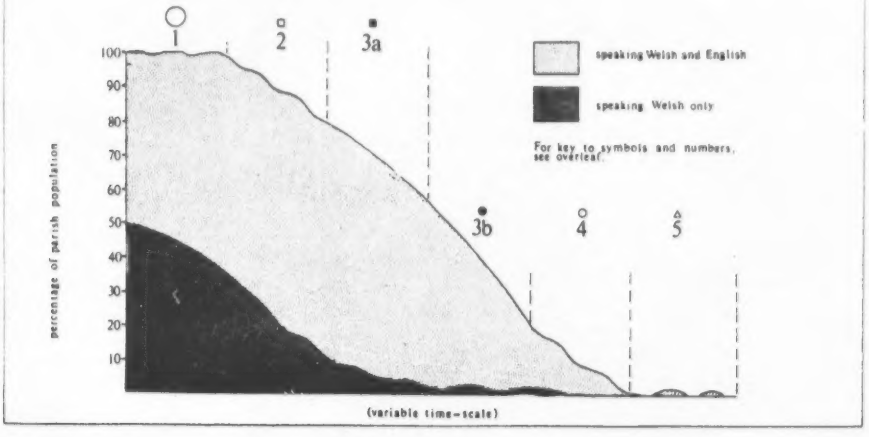
The Census Background:

Census information on Welsh speaking should not be undervalued as an aid to the study of the language at a national scale; it has documented the numeric decline of the language, from a peak of 977,000 speakers in 1911 to 542,000 in 1971, as well as providing information on monoglot Welsh numbers and, more recently, information on reading and writing ability in Welsh.[8] Its relative weakness as a provider of qualitative information on language use is among the shortcomings which have been pointed out by a constantly-growing literature on the changing distribution of Welsh, but much of this literature, based on the mosaic of parish and ward figures from successive decennial reports, would never have been written without the support of existing census data, deficient though they may be.[9] Certainly, the twentieth-century decline of Welsh must be one of the best documented linguistic events in Western Europe, and its discussion has become increasingly more refined and analytical.[10]

It is at the sub-parish scale that analytical problems begin to become serious. For example, the sequence of decennial figures invites examination of patterns of language change over time. and this can be relatively easily accomplished using a procedure such as that summarised in figure 2. When the pattern of proportional change in parish populations able to speak Welsh has been plotted over a fifty-year period (figure 2c), parishes can, in most cases, be allocated to one or more phases of language shift, as shown by the generalised model in figure 2a. Occasional aberrant cases (for example Esclusham Above) hint that processes occurring at the sub-parish level may halt or reverse the apparently inevitable and inexorable process of decline, when once it has begun, but at this scale such exceptional cases are comparatively few in number. It is vital to remember that while the parish unit may be a relatively large scale basis for geographical study

Language change over fifty years

a: STAGES OF LANGUAGE SHIFT AS DERIVED FROM CENSUS DATA

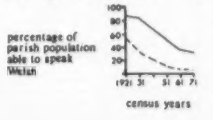


b: KEY TO PHASES OF SHIFT

1	○	Whole parish population able to speak Welsh; only occasional cases of non Welsh speaking. (No example within extended study area.) Monoglot reservoir up to 50 per cent, but declining rapidly.
2	□	Percentage Welsh speaking fluctuates between 80 and 100 per cent. Monoglot reservoir has declined to 20 per cent or less.
3a	■	Percentage Welsh speaking clearly in decline, but still more than half the parish population able to speak Welsh. Monoglot reservoir fluctuating between 1 and 20 per cent, or, in some cases, practically extinct.
3b	●	Percentage Welsh speaking clearly in decline, and less than half the parish population able to speak Welsh. Monoglot reservoir fluctuating between 1 and 10 per cent, or extinct.
4	○	Percentage Welsh speaking fluctuates between 1 and 20 per cent. Monoglot reservoir usually less than 5 per cent, and sometimes extinct.
5	△	Welsh speaking sporadic or extinct. Monoglot reservoir non-existent.
?		Parish does not fall clearly into any of the above categories.

In some cases, parishes are in transition from one of these phases to another during the 50 year period, and more than one of the above symbols is shown.

C: SAMPLE OF PARISH DATA USED



Solid line indicates proportions able to speak Welsh; broken line refers to proportions unable to speak English; symbol refers to category to which the parish has been assigned

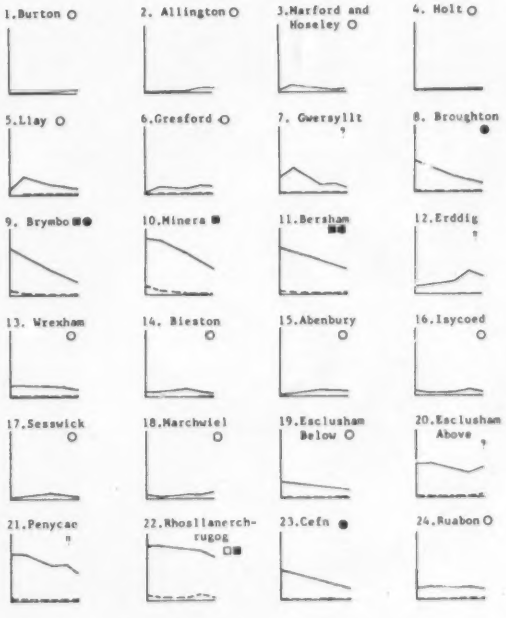


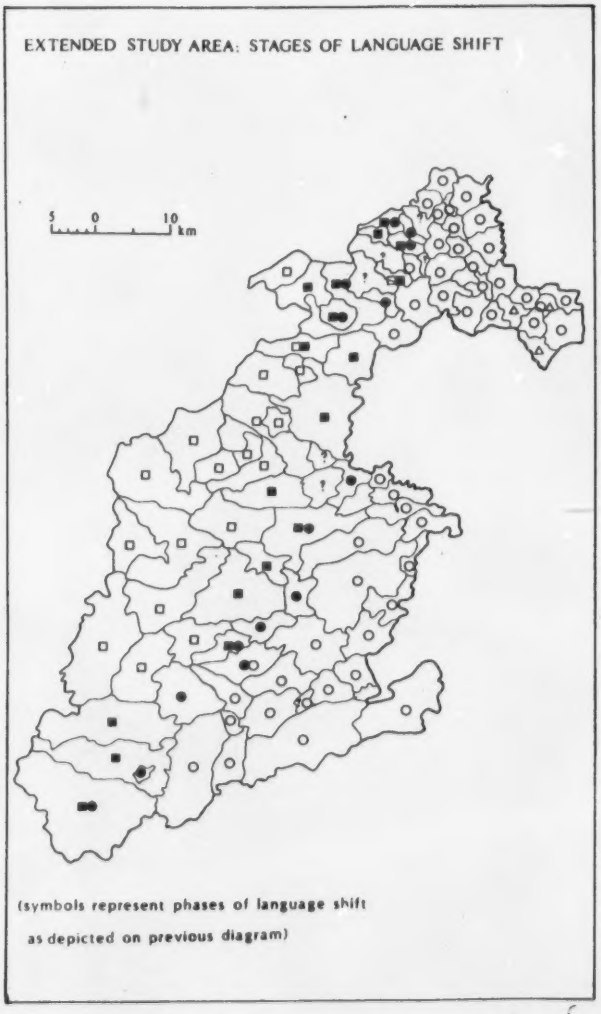
Figure 2

(offering, that is, a considerable degree of detail), in linguistic terms it represents a very small scale of approach, generalising most local deviations out of existence. For the purposes of drawing a diagram such as that in figure 2 the parish unit may appear to be advantageous, but in reality the parish scale disguises details which may offer a greater understanding of processes operating to change the local status of Welsh.

When the classified parishes from figure 2 are plotted cartographically (figure 3a), the "phase of collapse" (or the period over which the overall percentage of people able to speak Welsh falls, generally within a few decades, from over 80 per cent to 20 per cent or less) reappears on the map as a "zone of collapse", a few parishes wide. This zone, of significance for a later stage of the present discussion, is presented more conventionally on figure 3b, and compared with the broader pattern for North and Mid Wales as discussed by Bowen and Carter (1974).[11]

One of the most interesting, and least understood, features of the "zone of collapse" is the series of implications which it must have for the changing role of the resident individual speaker. Faced with a constantly changing situation and a probable loss of group identity and confidence on the part of the Welsh-speaking section of the community to which he belongs, the individual must constantly resort to his own judgement of which speaking domains, topics and localities permit and prohibit the use of Welsh. Sociolinguists such as Fishman (1969, p.49) stress the importance of the maintenance, within the speech group, of a certain degree of unanimity upon the choice of language for any given situation, but such group agreement is difficult to maintain under the conditions symbolised by the graph in figure 2, and the ensuing uncertainty, on the part of individual speakers, must contribute substantially to the furtherance of language shift in the zone or phase of collapse. Census data have proved useful in

The "zone of collapse"


EXTENDED STUDY AREA: STAGES OF LANGUAGE SHIFT
5 0 10 km
(symbols represent phases of language shift as depicted on previous diagram)

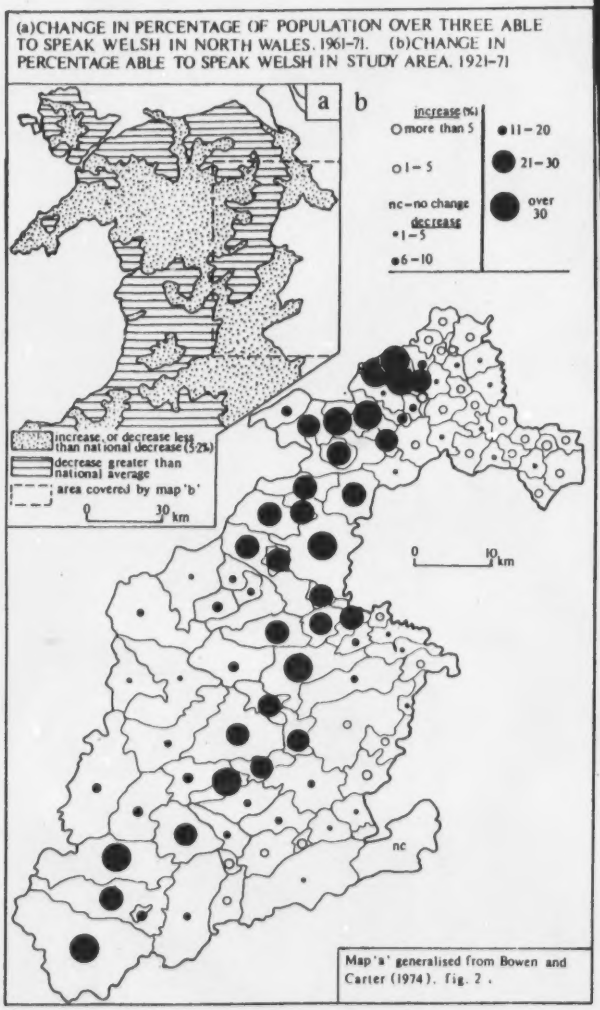

(a)CHANGE IN PERCENTAGE OF POPULATION OVER THREE ABLE TO SPEAK WELSH IN NORTH WALES, 1961–71. (b)CHANGE IN PERCENTAGE ABLE TO SPEAK WELSH IN STUDY AREA, 1921–71
a
b
increase (%)
more than 5
1 – 5
nc – no change
decrease
1 – 5
6 – 10
11 – 20
21 – 30
over 30
increase, or decrease less than national decrease (5·2%)
decrease greater than national average
area covered by map 'b'
0 30 km
0 10 km
nc
Map 'a' generalised from Bowen and Carter (1974), Fig. 2.

Figure 3

identifying this feature, but that is only the beginning of its study. To pursue the investigation, a further enlargement of scale is necessary, and there remains only the possibility of using the mesh of enumeration districts employed by the census-takers in 1971.

The acquisition of enumeration district figures for Welsh speaking proves to be a costly procedure, both in terms of money and of time, since language statistics are not part of the standard range of small area statistics made available by the Office of Population Censuses and Surveys.[12] Further time and expense are necessary to obtain the base maps of enumeration districts on which to plot the information, but eventually it is possible to produce a map such as that in the lower part of figure 4.[13] The same area is plotted on a parish basis in figure 4a, for comparison. With an appreciable increase in the number of units available for urban areas (1 on the map), it may seem that an advance has been made, but the increase in the level of information is related directly to population numbers rather than to areal units, and the decrease in the size of the mesh for country areas is almost insignificant. This is particularly clear in the Maelor parishes (2). Further, even for areas which appear to have benefited from an increase in detail, a closer look reveals that figures for enumeration districts merely duplicate parish figures in the majority of cases, rather than highlighting differences within parishes. This seems to be because, for the convenience of enumerators, parishes were subdivided in such a way as to provide each person with a discrete and self-contained unit in which to work. Llansantffraid Pool and Llanfechain, for example (3), have been divided along the main road running along the valley which passes through the two parishes, ensuring a component of hill and valley land in each enumeration district and a series of figures which merely duplicate each other. The limited use of enumeration districts as a basis for geographical

Census data: increase in detail provided by decreased mesh size

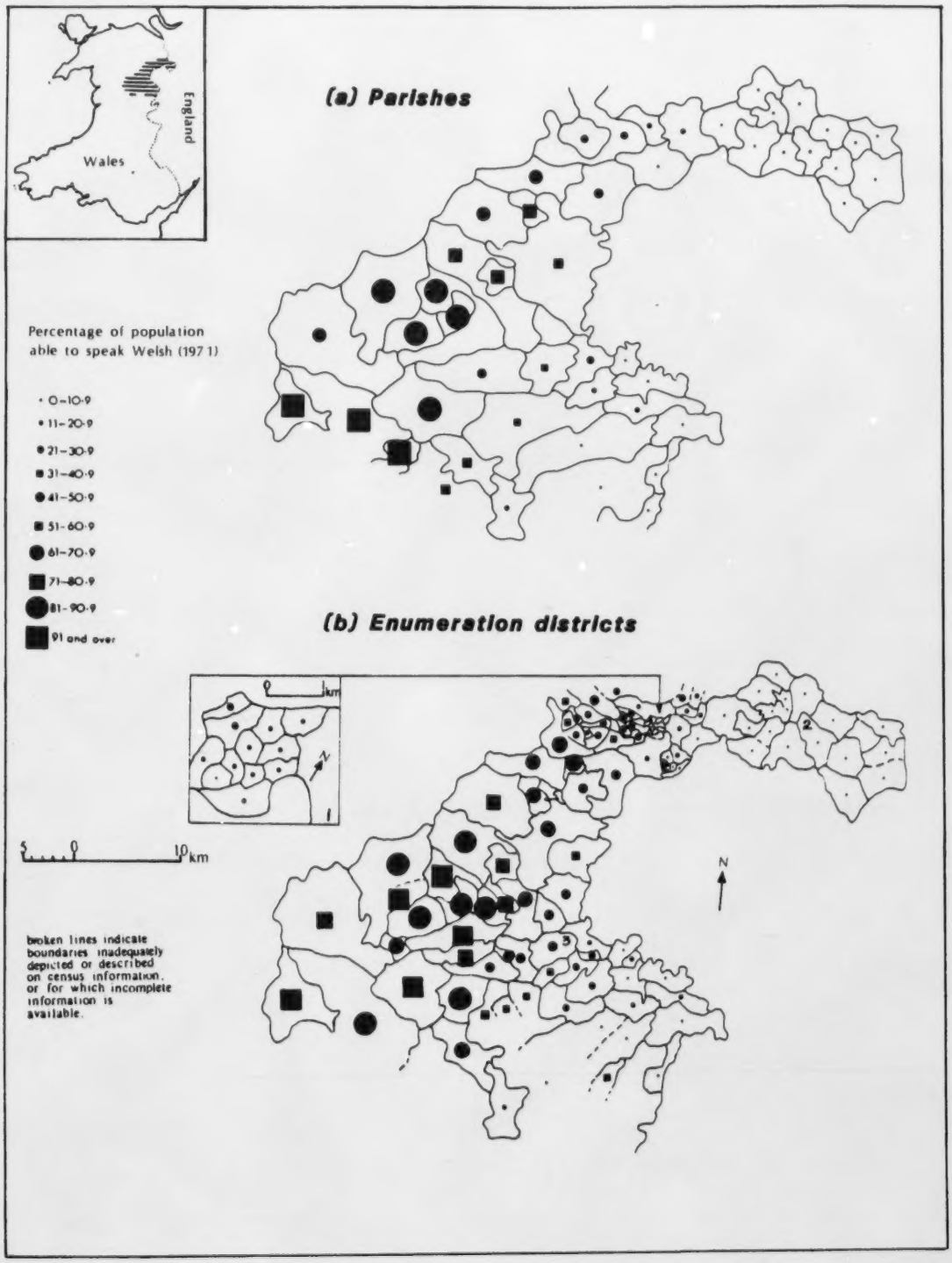


Figure 4

research has been realised for some decades,[14] and this attempt to make use of them only reinforces the point that arrangements which are perfectly sensible for the organisation of census-taking may not always provide all census users with the types of spatial information which they require.

As for the intended comparison of enumeration district figures over the period 1921 to 1971 for the "zone of collapse", such an exercise now seems not only pointless but practically impossible, for enumeration district boundaries tend to be altered between one census and the next, rendering comparisons invalid. If any further information is to be obtained on the zone, it will clearly have to be by other means.

In the case of Breton, the other language of study, census data problems do not arise, since there is an almost total absence of any official statistics on the language's distribution and numeric strength. Those who seek such information are obliged to rely upon a varied and not very numerous collection of estimates. A figure of over 1,300,000 people able to speak Breton is quoted for the eve of the First World War[15]. (a similar date to the numeric peak of Welsh), while an estimate for 1974 suggested that the number of speakers had fallen to 685, 250.[16] In the Breton case, difficulty arises even in locating a suitable border area for study, and the survey area was finally traced by field investigation in the area just west of Sébillot's language limit of 1886.[17]

By now there can remain little doubt of the benefit of attempting to remedy the deficiencies of official statistics by an experimental field investigation at as detailed a level as possible. Two phases will be described. In the first, the aim is to produce "language ability" or "language potential" maps, presenting information similar to, but more detailed than, that obtained from the census question on Welsh speaking.

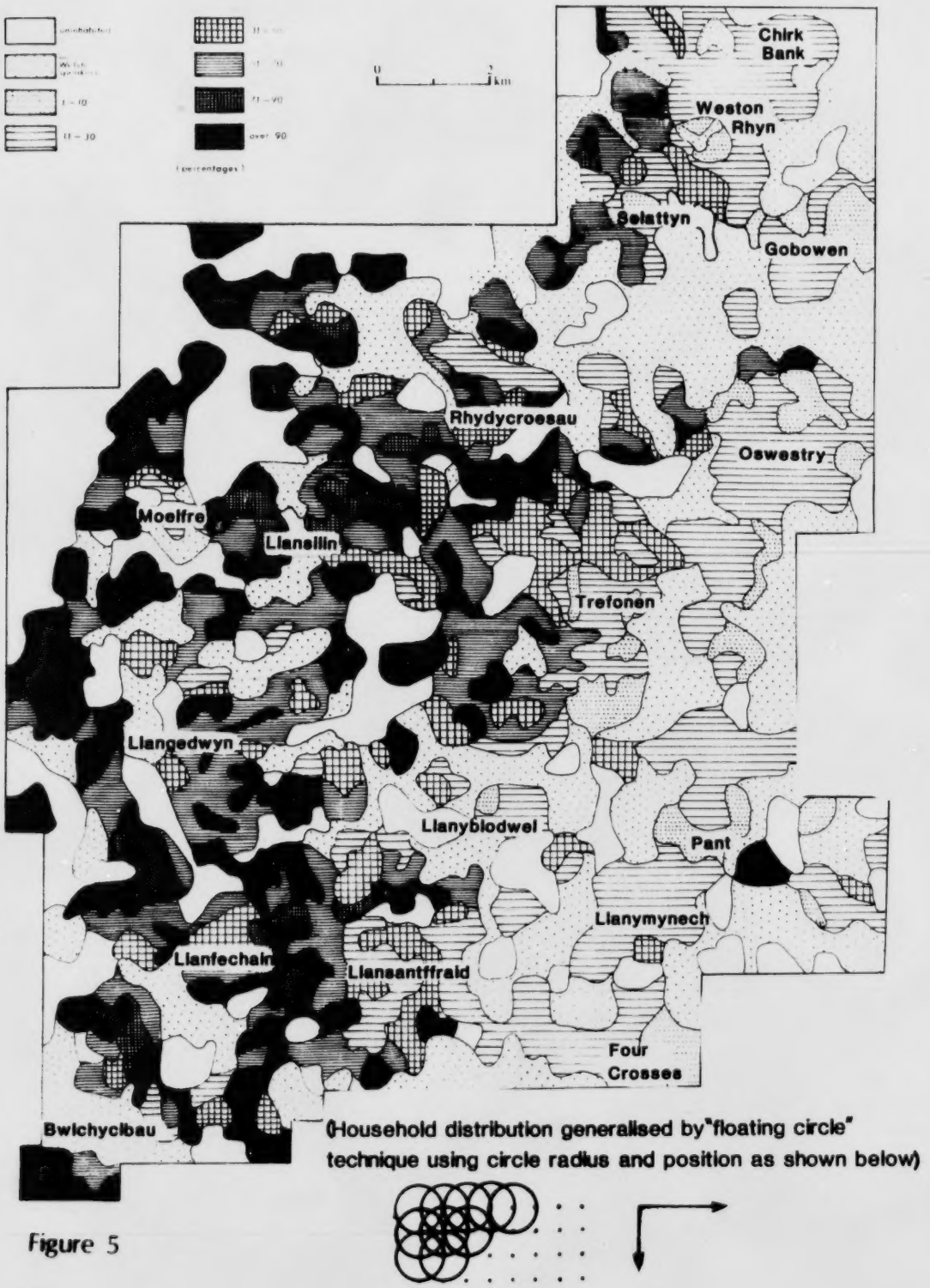
A later stage of the methodology will attempt to produce maps of language frequency and versatility, providing indicators of Welsh and Breton in practice with which to compare the patterns of numeric potential.

Language potential

There is an element of irony in the necessity of conducting a doorstep survey on language potential in the Welsh area, in view of the fact that data for most of the area already exist in the census records of the area, were it but possible to gain access to them. It has, however, been possible to add information for the area of north-west Shropshire where no language question was asked but which has the reputation of being a Welsh-speaking area. In the first phase, fieldwork is lengthy and repetitious rather than complicated, particularly as there appears to be a need to obtain, as nearly as possible, a hundred per cent survey of speakers in the two areas, in order to demonstrate the complexity of patterns thought likely to exist.

Figures 5 and 6 represent the result of the fieldwork, which proves to generate quite as much detail as expected - to the extent, in fact, that the first problem is how to generalise the pattern enough to produce a legible visual impression without incurring a substantial loss of the detail so carefully sought. The method chosen has been the application of a "floating circle" technique, to turn the point distribution of speakers into a surface.[18] Quite simply, the method superimposes a shape approximating to a circle with, in this case, a radius of 400 metres over the household distribution map. Households with one or more Welsh or Breton speakers are calculated as a percentage of all households and the circle moves on, being placed in this case, at a regular series of

Percentage of households with one or more members able to speak Welsh, 1972



(Household distribution generalised by "floating circle" technique using circle radius and position as shown below)

Figure 5

Percentage of households with one or more members able to speak Breton, 1972

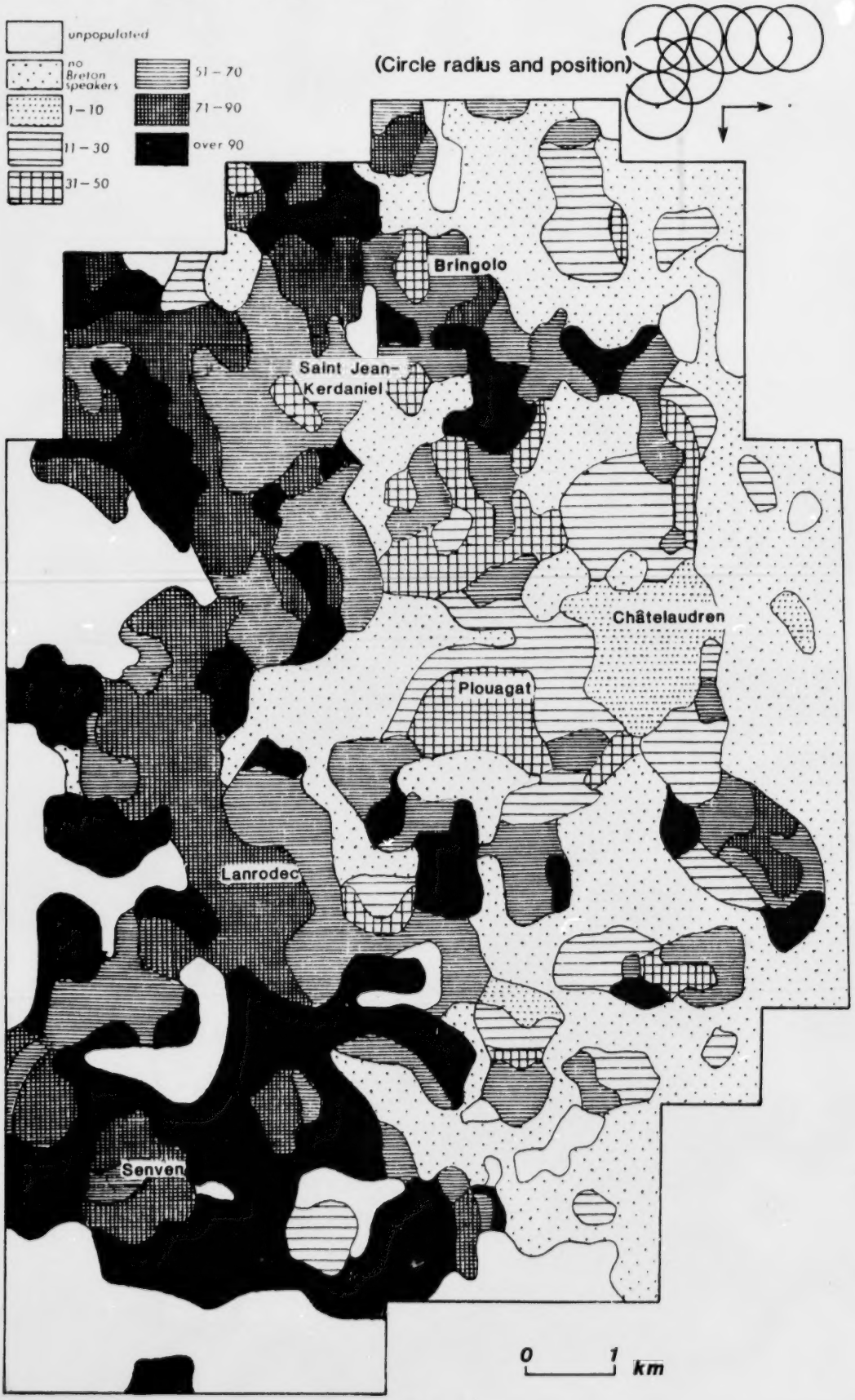


Figure 6

points 200 metres apart (see additional information on figures 5 and 6). If still greater detail were required, the unit of distribution used could be the individual person rather than the individual household, and this would undoubtedly generate distributions of still greater complexity and accuracy. As it is, there is perhaps a greater percentage of households with only one or two members able to speak Welsh or Breton in the eastern portion of the maps than in the western. The result of this is two-fold: the method tends to exaggerate the potential influence of Welsh and Breton in the east and correspondingly under-estimates the numeric intrusion of English and French westward into former Welsh and Breton strongholds. In addition, there is a greater likelihood of chance occurrences affecting scores in the less densely-populated areas, particularly the extreme western fringes of the Welsh map and the extreme south-west of the Breton one, where percentages may, in extreme cases, be accounted for by the presence of only one or two households. This last problem could have been avoided by using a method similar to the "floating circle" one but which increased the radius size until a stipulated minimum number of households had been "collected", and then proceeding to work out Welsh and Breton households as a proportion of all households, as before. The computer program called "Range Map" comes particularly to mind as being suitable for this purpose.[19] It can be claimed, however, that the floating circle technique simulates with a rather greater degree of accuracy the conditions existing in reality. Its ability to turn the point pattern of households into a surface composed of several or many households gives some indication of the fact that language is an interaction between speakers within the locality, and it is not unlikely that in less densely-populated areas any given speaker will be less likely to meet a large number of people on the average day than will a speaker in a locality with many households. The floating circle is therefore preferred.

The complexities of the patterns on figures 5 and 6 both confirm the amount of detail which escapes the census mesh and also justify the necessity of covering the two areas by a hundred per cent survey rather than by a sample. The "zone of collapse", running down the centre of the Welsh map, is seen to be every bit as complicated as surmised, and the Breton map, too, has areas of considerable complexity. Beneath the varied pattern in both areas however, is a more general one of east-west transition. For the Welsh area, at least, this is no surprise, merely corroborating what parish returns already indicate. In the Breton case the transition is, if anything, even more abrupt, and confirms that the border has been accurately located. The two maps assist in giving an impression of the way in which the border of that entity known as the "language area" may be expressed in the local landscape.

It remains to be seen whether later measures of language use in practice will reinforce the abrupt pattern of transition; the expectation is that since language use is a behavioural trait rather than simply a function of geographical distributions, it will demonstrate the influence of such factors as group perception of the extent of the language area, on the part of Welsh and Breton speakers, making the transition in practice even more rapid than that shown by the maps of potential use. On the other hand, if patterns of language use in practice even approach the complexity of those on figures 5 and 6, there may be such doubt and confusion in the minds of individual bilingual speakers, concerning the choice of language to be used in any locale or locality for any particular purpose, that any consensus on the location of the language border becomes impossible. This suspicion is strengthened when it is remembered that the maps of language potential represent only one moment in a constantly-changing distribution of Welsh and Breton, especially in the zone of collapse, and that a language choice considered to be appropriate for a given place

in one year may not be so in the following one.

To illustrate, in cartographic form, the complexities of language border zones may perhaps be an advance in the investigation of such areas, but problems are immediately posed in respect of the analysis of the maps produced. Conceptual frameworks such as network analysis or innovation diffusion suggest themselves as possibilities and have been used elsewhere to examine language change.[20] The immediate task here is not to employ such methods, though they could in future prove appropriate at the micro-scale. More basically, the present aim, as expressed earlier (pp 4 - 5), is to relate language use more generally to the local landscape, using as a basis the data from which figure 5 was compiled. First, a vertical dimension will be added, and language potential will be examined in relation to local topographic characteristics. The numeric aspects of Welsh will then be placed in the context of an urban landscape, using the town of Oswestry as an example.

It was in 1947 that W.H. Rees put into formal terms a principle long implicit in geographical studies of the Welsh language : that its areas of greatest proportional numeric strength might be related to localities of higher ground and greater relative relief within the Welsh Borderland.[21] His "relief principle", if valid at the regional scale, may also be capable of application at the local scale of the two study areas, provided that the degree of detail of the pattern does not conceal the relationship. A random point sample from figures 5 and 6, stratified by altitude zones, provides the figures on Table I.

Altitude is a somewhat imperfect measure of what Rees had in mind, but still appropriate in that it implies reduced accessibility and a lesser likelihood of incursion by English or French into traditionally

TABLE I The "Relief Principle" ; Language Potential and Altitude Zones.

Welsh area		Breton area	
Height of zone above sea-level (feet)	Average percentage of households with one or more people able to speak Welsh	Height of zone above sea-level (metres)	Average percentage of households with one or more people able to speak Breton
201 - 300	6	less than 100	11
301 - 400	10	101 - 130	17
401 - 500	12	131 - 160	29
501 - 600	18	161 - 190	52
601 - 700	37	191 - 220	57
701 - 800	49	221 and over	54
801 - 900	35		
901 - 1000	51		
1001 - 1100	42		
1101 - 1200	66		
1201 - 1300	36		

Sources: figures 5 and 6 and 1 : 50,000 topographic maps.

Welsh or Breton speaking areas; on the other hand, greater altitude is also more likely to imply greater marginality for such pursuits as agriculture. In both of these areas farming has played a most important part in influencing not only the economic but also the cultural characteristics of the Welsh and Breton speaking groups, and anything which leads to the decline of marginal agriculture is also likely to be instrumental in disbanding Welsh and Breton speech groups. The "relief principle" may thus be used in support of two quite opposite arguments concerning topographic influences on language retention.

The evidence from Table I indicates particular support for the first of the two arguments, in both areas. With an increase in altitude (and an implied decrease in accessibility) there is a somewhat erratic but nonetheless significant increase in the percentage of households with a Welsh or Breton speaker. Against this general trend, at the highest altitude level, in the Welsh case at least, there are signs that a decisive decrease in the percentage of "Welsh" households has taken place. This impression is corroborated by field observation in the highest hill lands of the study area, indicating that many of the least viable upland holdings are being bought, generally for non-farming purposes, by people from outside the area and who are likely not to be Welsh speakers. The model in figure 7(a) expresses the significance of this more visually. It can be seen that this aspect of economic change is responsible for directing non-Welsh influence deep into that area in which a more continuous surface of potentially Welsh households might be expected.

The features pointed out in figure 7(a) are based on observation in the study area as a whole and are greatly generalised. For comparison, the complicated reality is portrayed in 7(b), a sample transect using the data from figure 5. With the eye of the optimist it is possible

Potential Welsh speaking surface related to topography

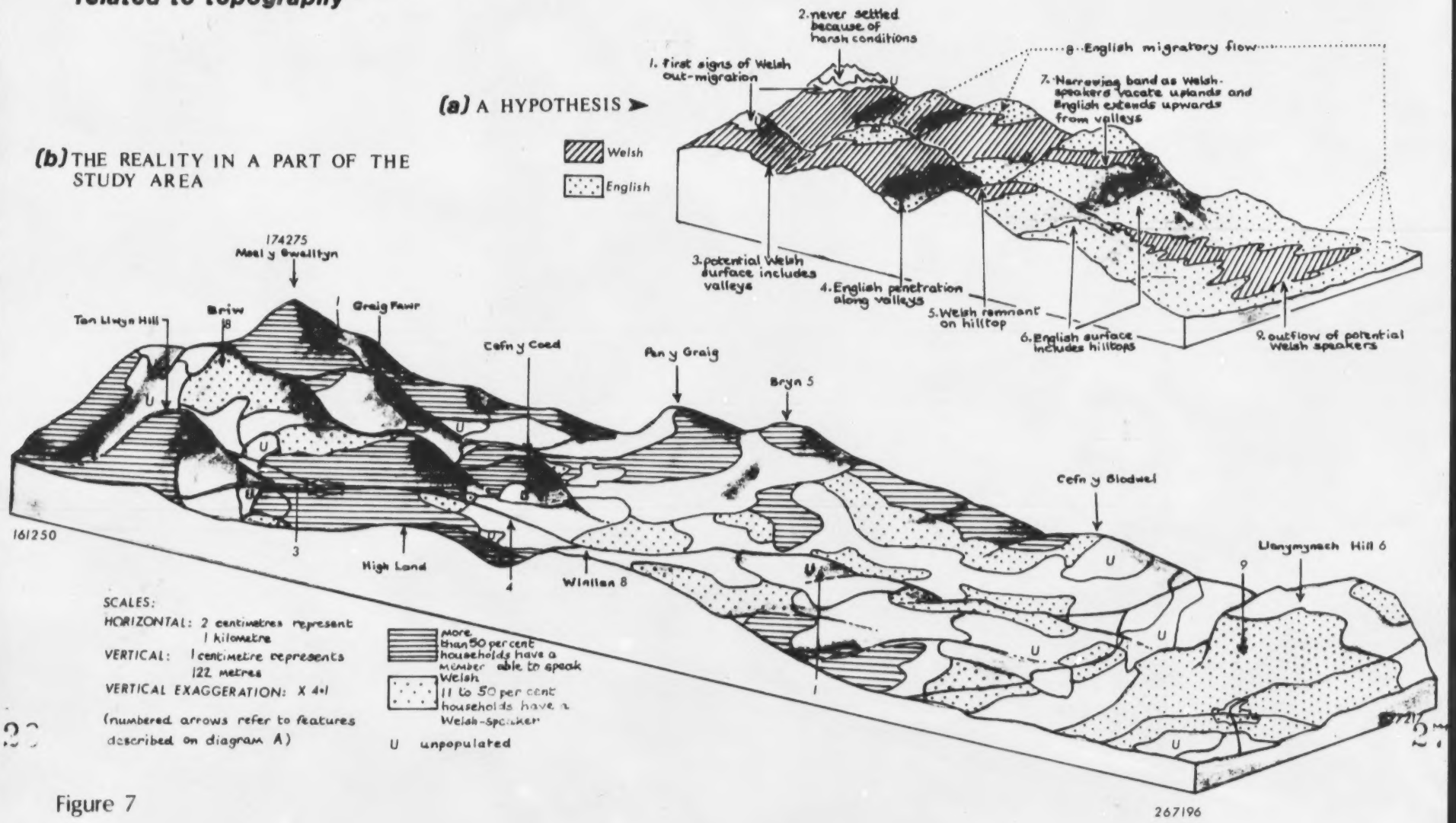

(a) A HYPOTHESIS
Welsh
English
1. first signs of Welsh out-migration
2. never settled because of harsh conditions
3. potential Welsh surface includes valleys
4. English penetration along valleys
5. Welsh remnant on hilltop
6. English surface includes hilltops
7. Narrowing band as Welsh-speakers vacate uplands and English extends upwards from valleys
8. English migratory flow
9. outflow of potential Welsh speakers
(b) THE REALITY IN A PART OF THE STUDY AREA
174275
Moel y Gwalltyn
Ten Llwyn Hill
Briw
Graig Fawr
Cefn y Coed
Pen y Graig
Bryn 5
Cefn y Blodwel
Llanymynech Hill 6
161250
High Land
Winllan 8
267196
SCALES:
HORIZONTAL: 2 centimetres represent 1 kilometre
VERTICAL: 1 centimetre represents 122 metres
VERTICAL EXAGGERATION: X 4·1
(numbered arrows refer to features described on diagram A)
more than 50 per cent households have a member able to speak Welsh
11 to 50 per cent households have a Welsh-speaker
U unpopulated

Figure 7

to see many of the features from the model, including the gradual re-occupation of upland areas by non-Welsh households; but the pattern on 7(b) is a forceful reminder that, understandable though the wish to seek for neat conceptual generalisations of the problem may be, the result taken in isolation, may do something less than justice to the complexity of language shift in reality. Despite this, the exercise in relating relief to patterns of linguistic change may still be counted a useful one, emphasizing the fact that merely because visual patterns are not immediately evident with the locality it may not be assumed that they do not exist. Some aspects of local language change (such as the over-arching English migration), visible only when a degree of generalisation has taken place, may in fact be particularly important as a basis for further investigation within localities.

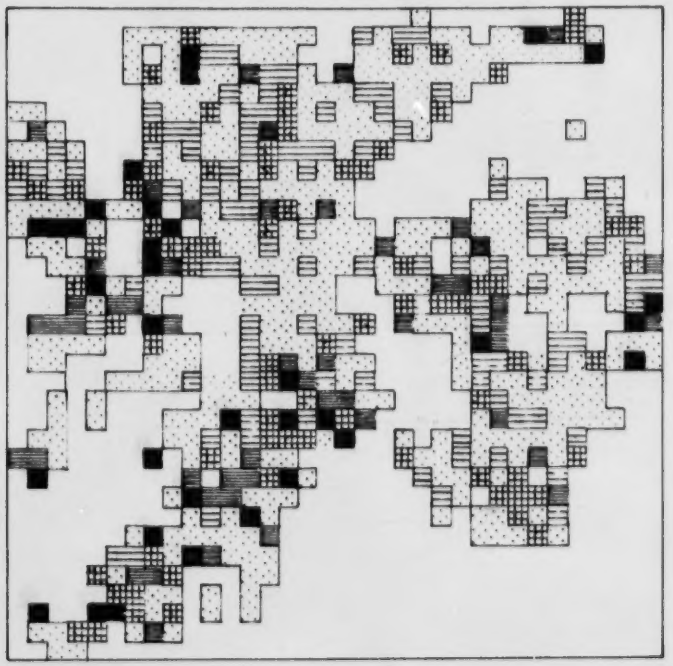
The second attempt to place patterns of potential language use in the context of the landscape relates to an urban context, at that point on figure 7(a) where potential Welsh speakers, having vacated the marginal uplands, migrate, through such processes as employment change and retirement, into the lowland areas, where many settle in urban areas such as Oswestry. A further consultation of figure 5 shows that while an inflow of non-Welsh speakers in the conditions of relatively sparse population found in the west of the area may have a marked effect on the resultant percentage surface, the corresponding outflow of Welsh speaking people into the eastern area of the map has relatively little effect upon the overall percentage there, because of the much greater total population densities in the east. This does not mean that locally high densities of speakers do not occur; the floating circle radius of 400 metres is enough to encompass large numbers of houses, and evidence of local groupings may thus have been lost.

Figure 8(a) therefore re-calculates the fieldwork data for Oswestry, grouping households by 60-metre squares. The suspicion of considerable variation within what appears to be a quite homogeneous area on figure 5 proves to be founded. Even at such a large scale and within such a relatively minor urban centre, distinct concentrations of speakers are visible. The second part of figure 8 places these in the context of residential landscapes within the urban area, and it can be seen that they correspond particularly with the areas of nineteenth-century housing surrounding the central business area, as well as with some of the new, mainly private estates on the outskirts of the town. There is a strong consciousness, amongst Welsh and non-Welsh speakers alike, concerning which parts of the town have strong Welsh associations. The town's four Welsh Nonconformist chapels are seen (not entirely accurately) by the Welsh community as being the spatial, as well as the social, foci of these areas; but perhaps more immediately important than the choice of focus is the very fact that the Welsh community has any image, however inaccurate, of its areas of numeric strength within the urban area at large.

Within the rural areas portrayed on figure 7(b) the image of the "territory" of Welsh seems to coincide generally with the hills of the west, and the evidence of numeric potential shows this to be almost certainly inaccurate, or at least grossly generalised. In the rural case, the problem is possibly more serious; whereas, in the town, speakers are within close enough proximity to maintain contact and the likelihood is that the inflow of Welsh speakers is helping to replenish the numbers of the speech groups, an overall decline in numbers of speakers has already been confirmed for the rural areas, and the problem is exacerbated by the thinly scattered nature of population distribution, making contact

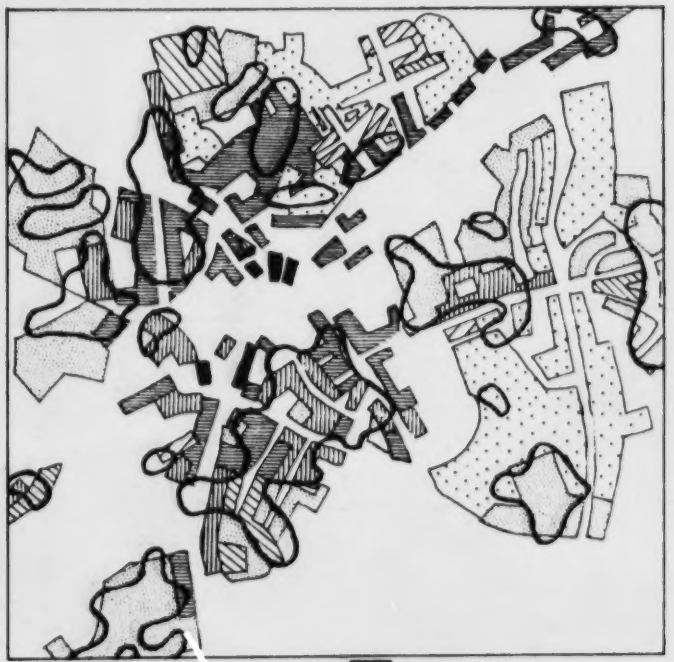
Oswestry: numeric patterns of Welsh in an urban environment

(a) Percentage of households with one or more persons able to speak Welsh



no population
0 - 9
10 - 19
20 - 29
30 - 39
40 - 49
50 or more

(b) Residential ages and types



0 300 metres

generalised areas of 20% households or more with a Welsh-speaker

pre-1800
terraced housing. 1800-1914
semi-detached houses or villas. 1800-1914
inter-war housing. mainly private
inter-war housing. mainly local authority
post-war. mainly local authority. houses
post-war. mainly private. housing

Figure 8

between speakers difficult to maintain under the constantly-changing conditions of shift. This is reinforced by the fact that the dynamics of population change mean that speaking numbers and proportions may alter imperceptibly, their implications unrealised by local speakers until the phase of collapse is already under way. In the Welsh area this last problem is alleviated, to some extent, by the census parish evidence, and many speakers are aware of the general nature of changes under way. This is much less so for Breton, where the lack of firm evidence of gradual numeric change at a regional and national scale must imply that the problem of lack of realisation is correspondingly more serious.

As might have been expected, the increased detail of the two maps of language potential, while helping to resolve a number of questions, also generates a large number of further mysteries concerning geographical aspects of language shift. Some of these may be explained if the practice of, rather than the potential for, language use can be shown in cartographic form. The criterion which first suggests itself as suitable for this purpose is the frequency of Welsh and Breton use by individual speakers.

Language Frequency:

It does not take long to discover the practical difficulties attached to this choice of measure of language use. The main one must be that of finding any consistent and objective measure of the absolute length of time during which an individual converses, listens and thinks using the medium of Welsh and Breton. It goes almost without saying that this problem remains unresolved. An additional interpretation of "frequency", in this context, refers to the relative length of time during which Welsh

rather than English, Breton rather than French, is used by any speaker on his daily business. Short of following individuals and observing their language choice for any situation, over a period of days or weeks, no immediate solution can be seen to this problem either. Even the painstaking method quoted would bring with it a number of questionable effects, such as the influence of the intrusive presence of the observer upon the behaviour of the observed speaker. The aim of the present exercise, as already stated, is to give due consideration to the individual but to accumulate, at the same time, enough observations to permit the drawing of maps, and some compromise has to be made in the interests of fulfilling this aim. Thus it is that speakers are asked to provide a self-assessment, expressed in word descriptions, of the relative frequency with which they use Welsh and Breton for daily conversation (see key to figures 9 and 10). Clearly the interpretation of the descriptions is likely to vary between respondents, but the intention is to seek for variation from one part to another of the resultant maps, rather than to place any absolute value on individual choices of description. Precisely similar problems confront official census-takers when it comes to the measurement of speaking frequencies, and this partly accounts for the general lack, already pointed out, of indicators of language use in practice.

Figures 9 and 10 represent the results of the speaking frequency survey, administered to a sample of the households with a Welsh or Breton speaker discovered in the language potential stage. Comparison between them is probably not valid because of the slightly different interpretations which the samples in the two areas may have placed on the word descriptions, despite every effort at close translation. There is an initial impression, however, of greater frequencies of Welsh use, as a proportion of all daily

Average frequency scores for Welsh speaking

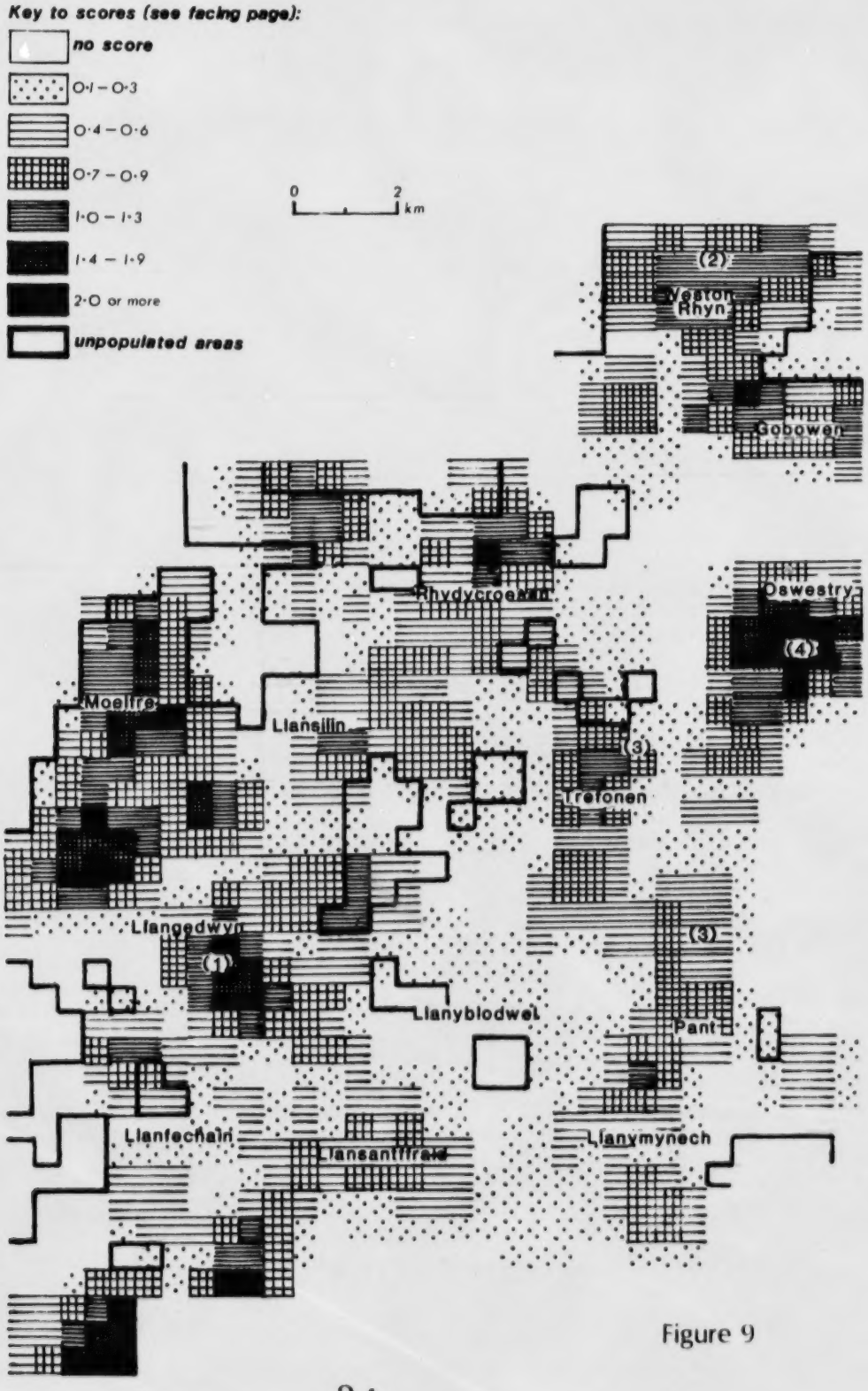


Figure 9

Key to figures 9 and 10:

Respondents' descriptions of their frequency of use of Welsh or Breton:		Score for description:
"Can speak Welsh but rarely or never does so"	"Sait parler breton, mais le parle rarement ou jamais"	1
"Sometimes speaks Welsh"	"Parle breton quelquefois"	2
"Speaks more Welsh than English"	"Parle plus de breton que de francais"	3
"Speaks only Welsh"	"Ne parle que breton"	4

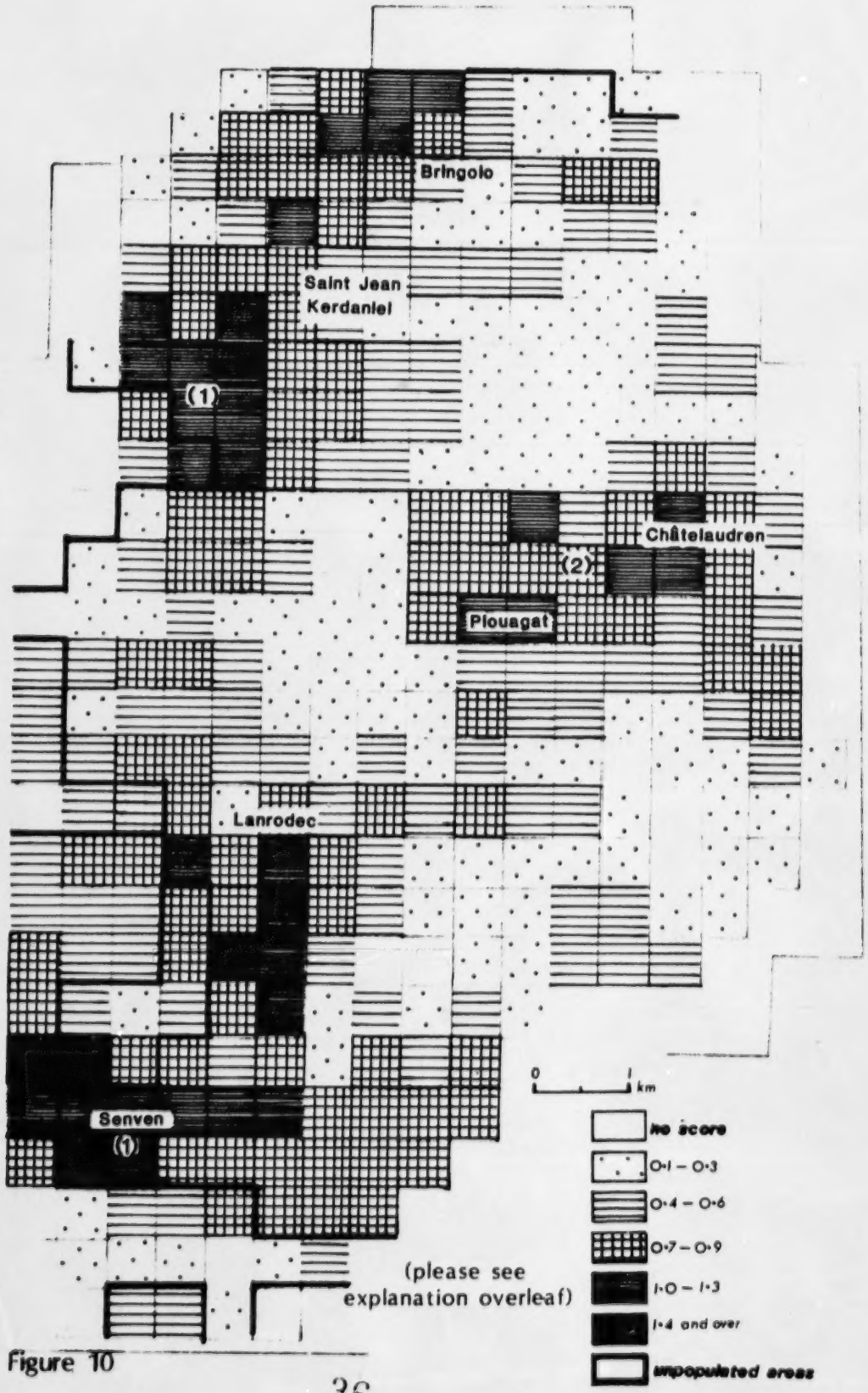
The appropriate score having been plotted at a point representing the home of the speaker in question, points were then allocated to grid squares, as shown on the maps, and the following weightings applied in order to obtain the scores represented by the shadings on the maps:

$$\frac{(n \times 1) + (n \times 2) + (n \times 3) + (n \times 4)}{N}$$

where n is the number of respondents with each frequency score in the square in question, 1 - 4 are the scores for descriptions and N is the total number of respondents in the square.

Finally, the pattern was "smoothed" by the application of a nine-square running mean (that is, the figure for each square represents an average of the score for the square itself and those of the immediately-surrounding ones). Unpopulated squares were not included in the calculation.

Average frequency scores for Breton speaking



(please see explanation overleaf)

Figure 10

speech, than of Breton, and this impression tends to be confirmed during fieldwork in the two areas. Less contentiously, it can be seen, if the two maps are compared with those of potential use (figures 5 and 6), that patterns of language use in practice, at least as measured by this criterion, are much more complex than a straightforward inspection of numeric distributions might indicate. This points, yet again, to the dangers of relying solely on numeric potential and, more particularly, on census information as a guide to areas of greater and lesser vitality of language speaking. Gone is the marked transition which was visible on the earlier maps for both areas, and it is replaced by a pattern of great local variation from one area to the next. It would be difficult to tell, from a casual glance at the maps, that they represented language border zones and were crossed by what writers in the earlier days of geolinguistic study were inclined to call "linguistic divides" and to portray by means of lines on maps.[22] The highly varied pattern may be taken as indicating quite different stages of language shift from one locality to the next, the degree of advancement apparently being dependent upon such influences as demographic and employment characteristics and upon the economic history of the locality concerned.

An initial inspection of some of the detail on the two frequency maps reveals that, amid the apparent confusion of information, explicable patterns can soon be found. High frequencies of Welsh use on figure 9 can be seen to coincide not just with one but with several types of locality: thinly-populated hill-farming areas in the west, where local proportions of Welsh speakers are high, but not their absolute numbers (for example, in the area marked 1); an area in the north, where coal mining in the earlier decades of this century attracted a largely Welsh speaking work-force from the west, and where the language appears to have been sustained in subsequent

times by a lasting Nonconformist tradition (2 on the map); roadsides and villages situated on or near routes into the Welsh speaking areas of the west (3); and finally, the town of Oswestry (4), with a long-established Welsh community, constantly replenished by immigration, and where the self-assessed frequency of Welsh exceeds that anywhere else in the study area (see also figure 11). The Breton map (figure 10), again showing several quite different types of area with relatively frequent Breton use, reinforces the belief that the assessment of the frequency of use of a language should not be based solely upon the inspection of numeric potential. Once again, some of the areas of thinly-scattered farming population (1) emerge as places of relatively frequent use, presumably because speakers are concentrated within sufficient distance of each other, and traditional social networks are sufficiently unbroken, to maintain the regular opportunity for speakers' meeting and using the language. Elsewhere, as in the area of Châtelaudren-Plouagat (2), despite the dilution of numbers of Breton speakers in the total population (as shown on figure 6), it appears that good communications links, notably the route nationale 12, help maintain a great enough degree of speaker contact to permit a continuance of Breton use.

The frequency pattern within the town of Oswestry (figure 11), if compared with that for potential use, as shown on figure 8(a), confirms that while the percentage of households with a member able to speak Welsh may be taken as an approximate indicator of the language's strength, it does not by any means provide an adequate guide to the current state of survival of Welsh in various areas of the town. Most of the areas which were noted as having a high potential use appear also as areas of relatively

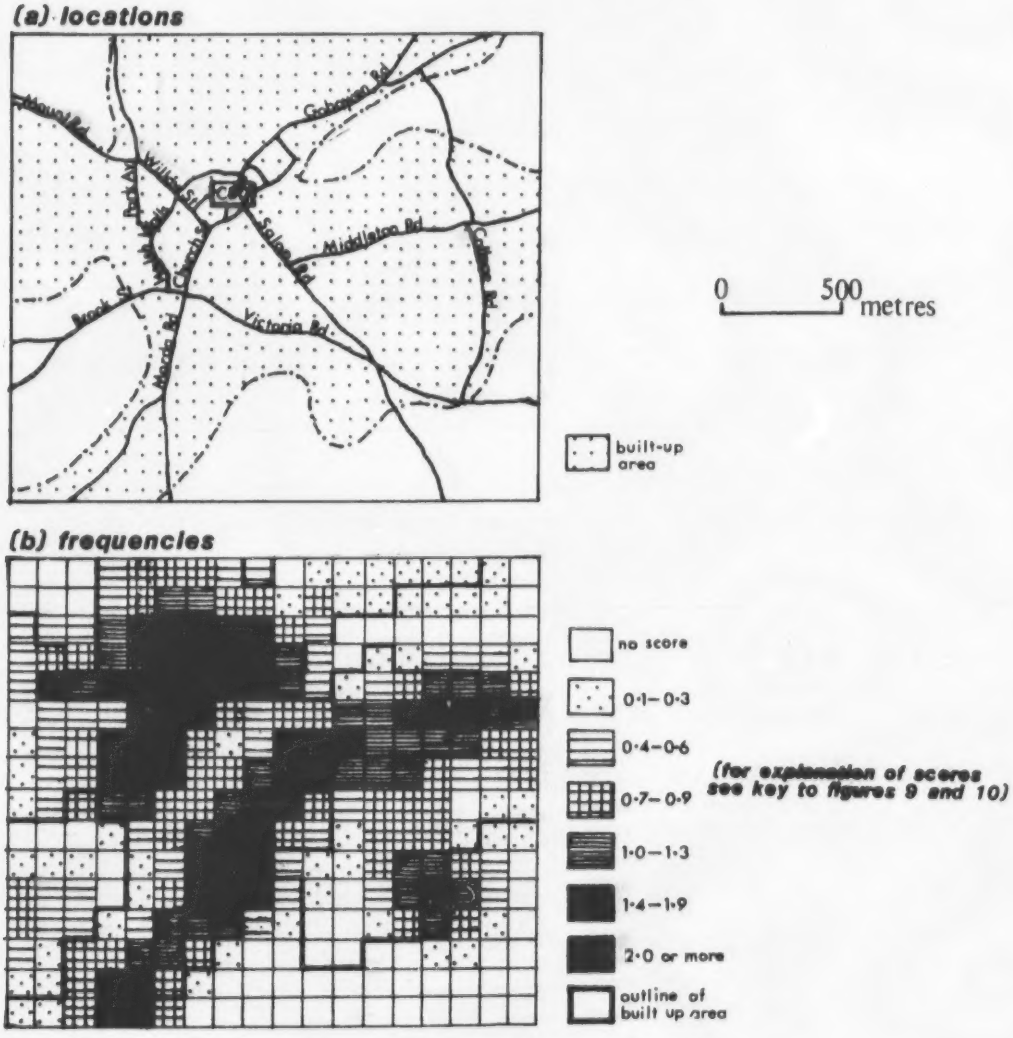


Figure 11

frequent use of the language, but one group of streets in the north-west of the urban area considerably surpasses other localities in its frequency of Welsh speaking. Examination of likely demographic causes of the difference, for example family size and age structures, reveals no recognisable clues. The main factor seems to be that whereas in other parts of the town Welsh speakers are not always aware of their local concentrations, there is a general consciousness, amongst Welsh and non-Welsh

alike, that this one group of streets is a "strongly Welsh area". This recognition means, in turn, that speakers with a particular ambition to maintain their use of the language may deliberately elect to move to this area of the town, thus perpetuating or strengthening the pattern. Once again, such phenomena may not easily be measured by conventional means; yet it is not unlikely that throughout Wales and Brittany local variations in group perception of language "strength" may play an important part in modifying the patterns which could be predicted using numeric statistics of language distribution.

As with the earlier maps, rigorous and systematic analysis of the frequency distributions presents some problems, particularly as the purpose as expressed earlier (p.10) is to compare them with the "potential" distributions. Some of the problems are methodological ones, surrounding the fact that the units used here are different from the household unit on figures 5 and 6. Other difficulties are of still greater import: at what point do differences in the potential and practice of language use become worthy of note when it has been impossible to set absolute values on the units used to measure them?

No entirely satisfactory answer appears to be available to the question, and the process of superimposing the information from the frequency maps upon those of potential, as demonstrated in figure 12, is a somewhat subjective one, though still worthwhile in that it helps to highlight differences within the two study areas, even if not between them. Examples have already been given of localities where language use in practice exceeds expectations, and such areas are clearly of interest to those wishing to plan for the retention and revival of the Welsh and Breton languages.

Areas of discrepancy between language potential and frequency

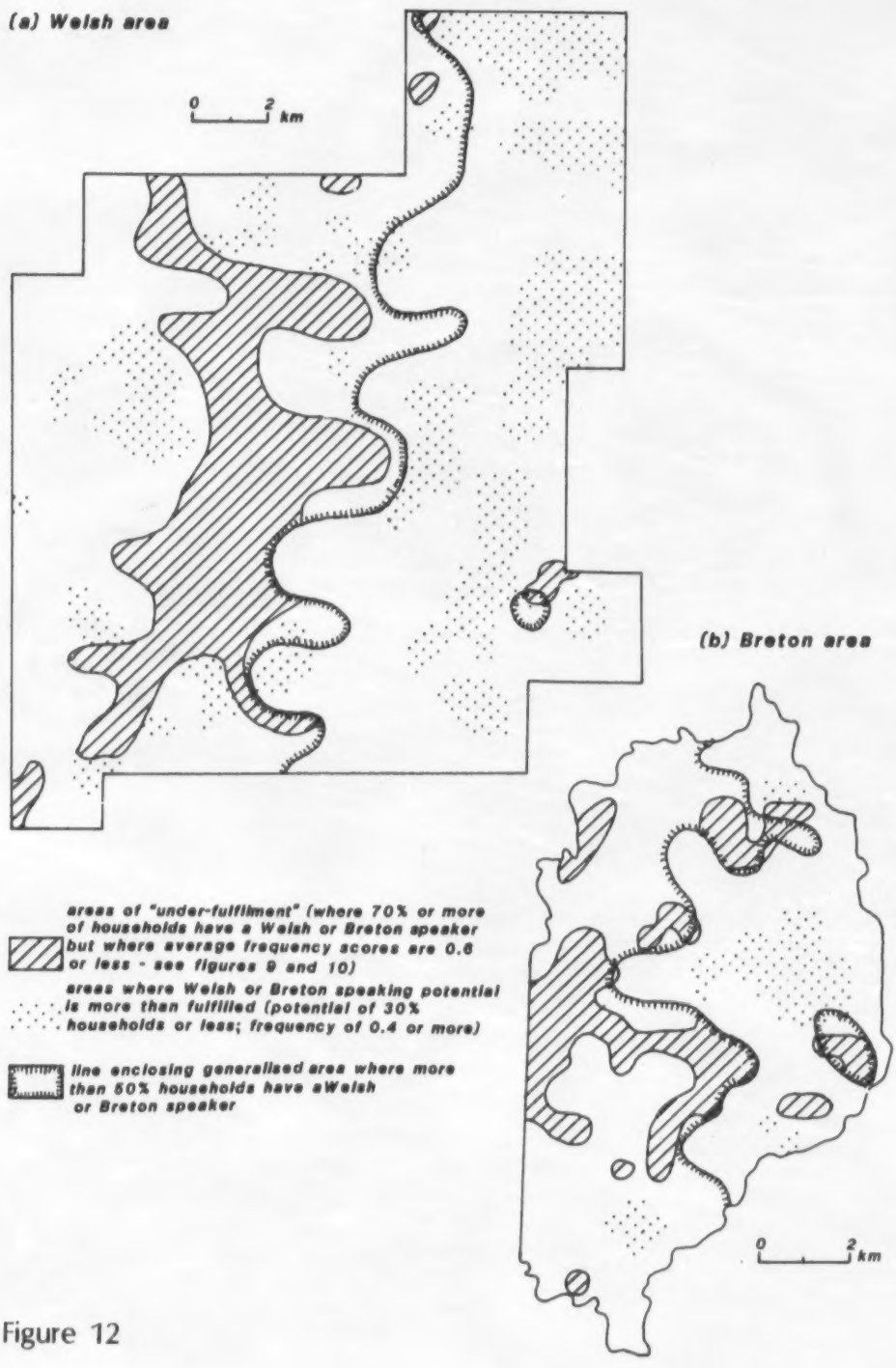

(a) Welsh area
0
2
km
(b) Breton area
areas of "under-fulfilment" (where 70% or more of households have a Welsh or Breton speaker but where average frequency scores are 0.6 or less - see figures 9 and 10)
areas where Welsh or Breton speaking potential is more than fulfilled (potential of 30% households or less; frequency of 0.4 or more)
line enclosing generalised area where more than 50% households have aWelsh or Breton speaker
0
2
km

Figure 12

Areas where language in practice does not reach expectations (that is, where its use is relatively slight when the number of potential speakers is taken into consideration) are also worthy of examination. It can be seen that such areas mainly fringe the localities of high potential Welsh and Breton use. They encompass a wide variety of terrain and settlement types, and an explanation of their existence seems to demand a return to figure 2 (phases of language shift) and to figure 3(a) (which plotted the phases cartographically). In connection with the latter the existence of a "zone of collapse" was postulated, and the crucial role of the individual speaker was pointed out. Different individuals, it was stated, may accede with greater or lesser willingness and rapidity to a change of language for some particular use or in any given domain, and the result is a popular confusion and lack of group cohesion and confidence, corresponding with the central phase of the collapse as depicted on figure 2. The zones of "under-fulfilment" on the Welsh and Breton maps seem to be the spatial expression of such a phase, and a reduction in the frequency of Welsh and Breton use more than proportional to the reduction in numbers of potential speakers appears to be another characteristic of the collapse phase or zone.

Such an observation could be held to contribute a purely geographical element to already existing sociolinguistic theory. Fishman, for example, points out that in conversations between bilingual individuals,

> ". . . 'proper' usage dictates that only one of the theoretically co-available languages or varieties will be chosen by particular classes of interlocutors on particular kinds of occasions to discuss particular kinds of topics."[23]

"Particular classes of individuals" could be distinguished on the basis of

age, occupation or perceived status, amongst many other criteria, and these criteria would be no less applicable in the zone of collapse than elsewhere. It is simply that in the zone as a whole, " 'proper' usage" may be distinguished somewhat differently from that elsewhere in the study areas, and that "particular classes" of speakers may be interpreted as "people living in one particular locality". There appears to be a tendency, during the collapse, for a large proportion of local speakers, old or young, farmers or businessmen, obscure or well-known, simultaneously to abandon the use of one language in favour of another, for any purpose, simply because they live in close proximity to, or in the same functional spatial community as, one another.

Language versatility:

The second measure of language use in practice, its versatility or the variety of situations in which it may be employed, may be of use in confirming or denying these observations on the restricted use of Welsh and Breton in the zone of collapse. Data were gathered at the same time as the information on language frequency, and are based upon the statement, by respondents, that they would be prepared to make use of Welsh or Breton (not necessarily, it should be noted, to the exclusion of, or even in preference to, English or French) in a series of stated locales and domains, chosen to encompass a variety of degrees of formality and spontaneity. The chosen criteria are the home, the neighbourhood group, street, and shops, church or chapel, workplace and an "elsewhere" category. The exercise as thus outlined is one which is frequently carried out in considerably greater detail, in surveys of language use, but appears to be rarely employed for the purpose of examining the specifically geographical distribution of responses, whether at a national, a regional or a local scale. Certainly the mapping of responses is a purely speculative procedure,

based on little more than the hope that an answer can be given to the questions: do habitual uses of language in specified domains and locales by people in the two study areas exhibit any clear and consistent spatial pattern? Does the variety of circumstances under which Welsh and Breton are used increase proportionally with the potential for, and frequency of, use of the two languages?

Figures 13 and 14 supply partial answers to these questions. It must be pointed out that they refer to the home locations of respondents stating that they use the language in any given situation, rather than necessarily the precise location of the locale in which they use the language, and that a coarser grid has been used than that for the frequency maps. These possible drawbacks do not obscure the fact that, in both areas, clearly different distributions of language use do appear to exist, according to the particular domain or locale being considered. Both sets of respondents, but particularly the Breton ones, use the language most generally in the household and neighbourhood situation, but whereas the general use of Welsh is maintained for several of the more "public" and "institutional" functions, notably shopping and church or chapel uses (13 (d), (e)), there is a greatly reduced usage for the Breton equivalents, as 14 (d) and (e) show. This confirms casual impressions gained during fieldwork, that the Breton language, in the area chosen for study, has "retired indoors", without the crucial support of institutions such as school Breton classes, except for a privately-educated minority, or church services in Breton. Without such semi-formal support, group confidence in the viability of the language must be affected, and the language shift accelerated. An additional problem must be that of maintaining a standard local speech form when the relative lack of everyday public use of the language allows speakers little opportunity to compare or augment

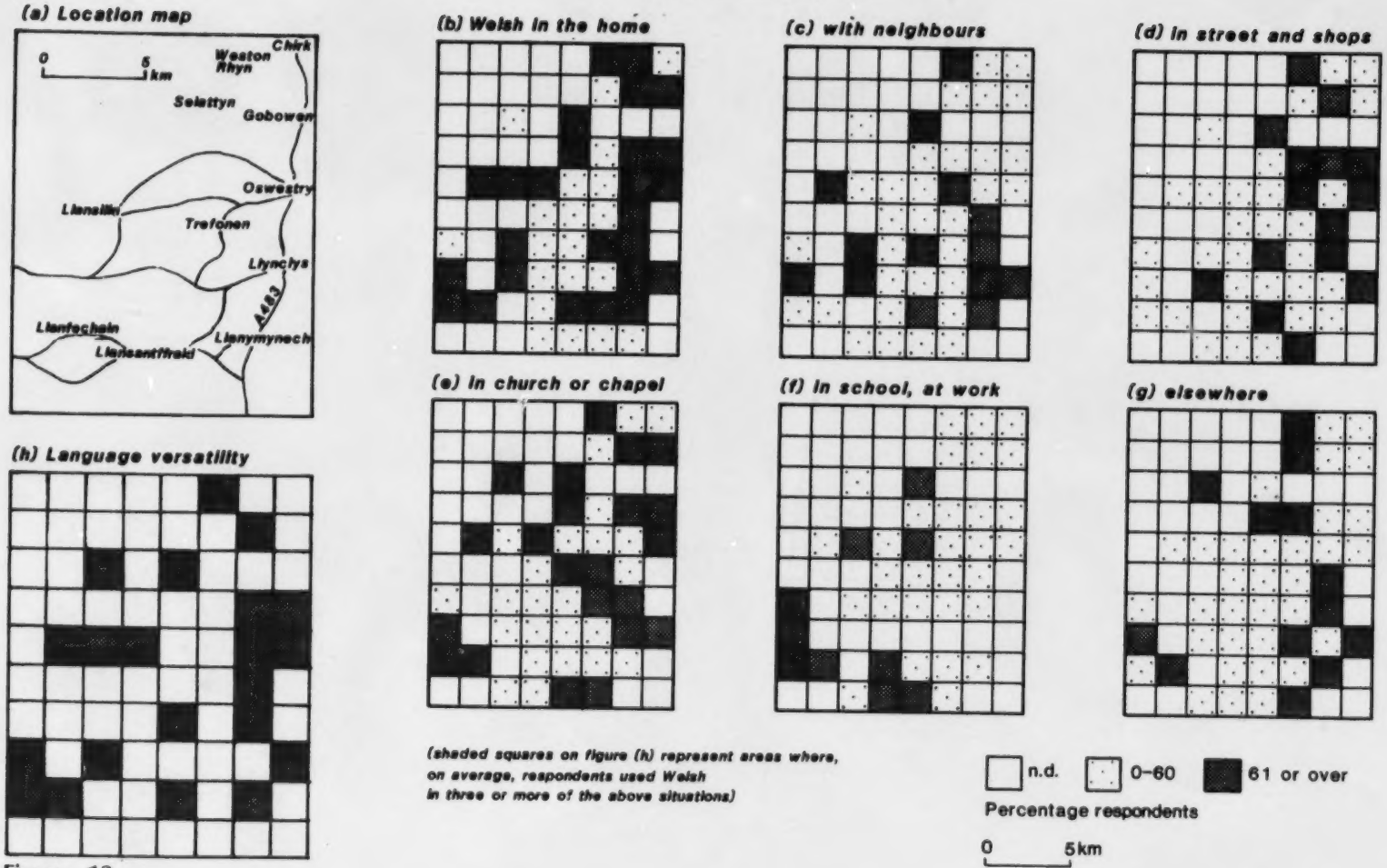
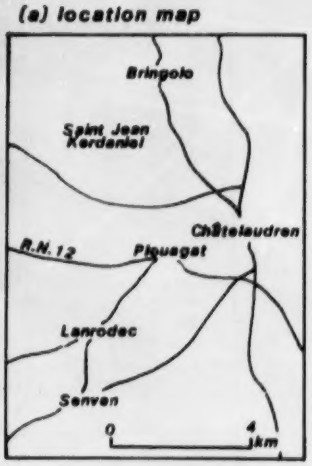
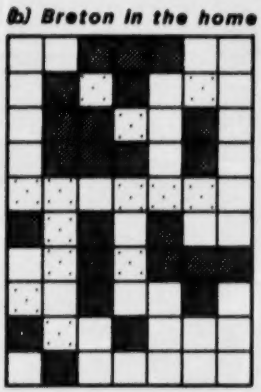
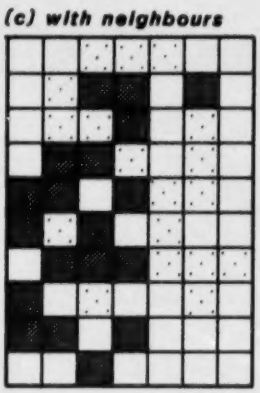

Versatility of Welsh use
(a) Location map
0
5
1 km
Weston Rhyn
Chirk
Selattyn
Gobowen
Oswestry
Llanelliu
Trefonen
Llynclys
A483
Llanfechain
Llanyblodwel
Llanymynech
(b) Welsh in the home
(c) with neighbours
(d) in street and shops
(e) in church or chapel
(f) in school, at work
(g) elsewhere
(h) Language versatility
(shaded squares on figure (h) represent areas where, on average, respondents used Welsh in three or more of the above situations)
n.d.
0–60
61 or over
Percentage respondents
0
5km

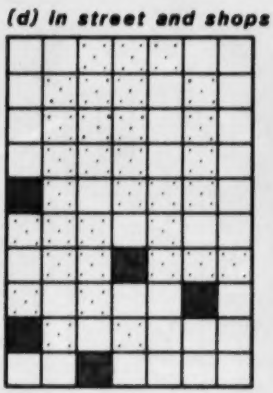
Figure 13

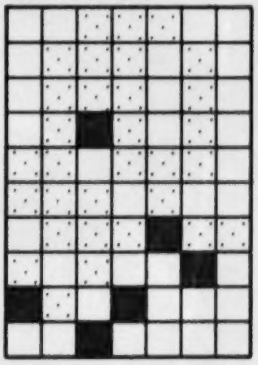
Versatility of Breton use

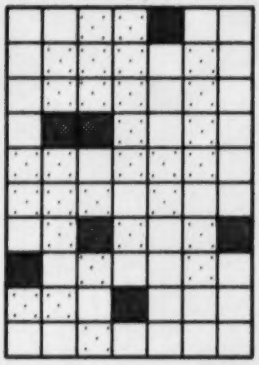


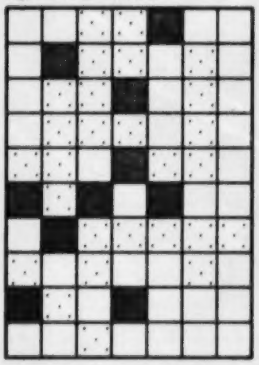


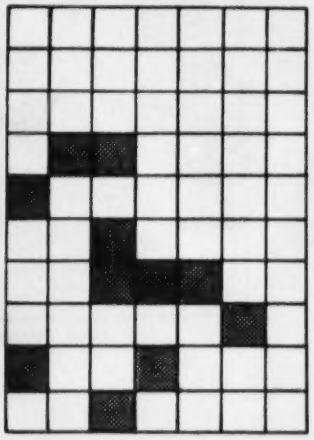












(shaded squares on figure (h) represent areas where, on average, respondents used Breton in three or more of the above situations)

n.d. 0-60 61 or over

Percentage respondents

0 4km

Figure 14

vocabulary and structural elements of language, though neighbourhood usage (14c), newspapers and Breton broadcasting may go some way towards counteracting this problem.[24] In both areas the use of Welsh or Breton "elsewhere" is seen to be more general than some of the other situations, though as a sign of increased language versatility this is less healthy than it first appears, since most respondents, particularly the Breton ones, use this category to refer to family visits, which probably allow little opportunity for an increased variety of language use.

The sets of maps in figures 13 and 14 may thus form the basis of a host of interpretations of language use in practice, and of its variations from place to place. It should be stressed that the information from the maps is much reduced in value if not complemented by the large volume of non-spatial information already available on aspects of language use in different locales and domains; the evidence from the maps seems to stress, however, that uses of language in specific situations do seem to have distinctly different distributions, and that geographical, more specifically cartographic, approaches have an important, if as yet ill-defined, part to play in the analysis of processes of language shift. One of the more interesting extensions of such methods might be their application at the national scale, to discover the extent to which the pattern of local spatial variation in situational use is repeated in the context of Wales and Brittany as a whole.

Apart from their methodological implications, the maps of "speaking variety" provide further evidence on the practice of language use in the two study areas, for comparison with the earlier maps of potential. Figures 13 (h) and 14(h) represent the average number of each of the specified situations in which respondents stated that they used Welsh or

Breton. The attempt to use the two maps to confirm traits observed in the language frequency maps is a somewhat chastening exercise. It might be expected that the zone of "under fulfilment" (where it was stated that self-assessed levels of frequency failed to reach expected levels, as based on numeric potential and mapped on figure 11) would also reappear here as areas of lesser variety of language use. On the Welsh map the pattern is to some extent confirmed; a zone of apparently less "versatile" use of language runs down the centre of the study area, in a location not dissimilar to that of the reduced speaking frequency area on figure 11 and the earlier-mentioned "zone of collapse". On the Breton equivalent, however, it is precisely in the zone where a reduced variety of language functions might be expected that the variety of its uses appears to be high, while in the town of Châtelaudren, which exceeded expectations in the frequency of use of Breton, the variety of situations in which the language is used is surprisingly small. The apparently contradictory results for this indicator of language use in the two study areas may only be a characteristic of the respondent sample; on the other hand it provides a sharp reminder that the search for geographical pattern - or any other kind of pattern - in linguistic processes should not be permitted to obscure any local and unique characteristics of individual and group language use, merely because they do not obviously conform to universal usage.

This point of contradiction in the data suggests that it is time to adjourn the discussion and to draw together some conclusions from what has been, at many points, a speculative exercise in the application of cartographic techniques to the abstract complexities of language. What, if anything, has the experimental procedure been able to add to the understanding of the methodology in general and of the problems of the study

areas in particular?

The scale of approach to the geographical study of language has been a recurrent theme, and the more apparently successful aspect of the methodology has shown that however detailed the inspection of language patterns becomes, a strong spatial element is still to be found. At the household and individual scales there is pattern both in the numeric and in the functional aspects of language. The evidence indicates that language shift operates through the medium of spatial systems, as well as social or economic ones, making concepts of space and distance not only justifiable but necessary adjuncts of studies of language change at the scale of the locality. There is a paradoxical element in the use of micro-scale maps to study language; often the complexity of the information received means that, as a stage in the process of understanding it, it must be re-generalised into conceptual models such as the topographic one used in figure 7 (a). To ignore the complexity of the reality and work only at the scale of the model would, however, be to block the route to an understanding of the processes taking place.

The methodology itself has still to be refined in many respects. The lack of complete coincidence of the units used on the "potential" maps with those on later ones presents some problems for analysis, particularly in the respect of the reduced possibility of direct superimposition of maps to compare their characteristics. A more generally accepted method of measuring language intensity in practice, including a refinement of the frequency and versatility measures, would be especially useful if micro-studies similar to the present one were carried out elsewhere, in order to permit a more reliable comparison of findings. A large number of directly comparable geolinguistic studies at the micro-scale for areas such as Wales and Brittany would help to discover the degree of universality

of the features noted in connection with the two very restricted areas used here, as well as aiding the advance of the methodological approach.

As for the degree of advance in information about the changes taking place in the two study areas themselves, it must be stated that anything which has emerged should already be seen as history, such is the transitory nature of many of the features discussed. This characteristic does not make them any less worthy of note, but stresses the difficulty of the task of planning in a suitably flexible manner for language change. A visitor to the two study areas today would probably find zones where Welsh and Breton are undergoing a comprehensive collapse, on account of some local demographic, economic or other influence, and also cases where concentrations of speakers have allowed some recovery in places where the speaking of Welsh or Breton has not been heard for many decades. Such features may be in quite different locations from those in which they were to be found when the present data were collected in the early 1970s. Subtle changes in concentrations of speakers are continually under way, a fact whose significance seems often to escape the attention of language planners and even of the speakers themselves. In the case of the latter, several years may have passed before it becomes apparent that a local collapse is under way (by which time spontaneous counter-measures are already too late), or that a local recovery is taking place (resulting in the loss of valuable speed in making use of the opportunity to aid revival). Strategies advocated by those who have observed language shift, particularly in Wales during the present century, seem to be based on consideration of units much larger in scale than any used here, and which involve broad zonations of the national territory not far removed from the degree of generalization of Bowen's (1959) "Inner" and "Outer Wales". The whole of the Welsh study area falls very clearly into the fringe or "Outer" area;

yet within it, subsidiary cores and fringes have been discovered and, moreover, they have varied in their location and intensity according to the criteria (numeric potential, frequency, versatility) used to demarcate them, as well as with the passage of time. Thus, while general approaches to the protection and stimulation of Welsh and Breton (for example, by the demarcation of statutory bilingual zones) may realistically be based upon large tracts of linguistic territory, detailed planning strategies at the level of the locality must be more flexible. One decade may call for increased stress on minority languages in schools in one particular location, while in the next, in the light of limited available resources, it may be necessary to transfer attentions to some other nearby locality, in response to changing numbers or densities of speakers. It would be a misfortune if, at the micro-scale, any one set of zonations, selected on the basis of limited information on language potential and practice, were to be elevated to the status of formal language planning zones, regardless of the constantly-evolving reality of linguistic processes. To set against this, realistically, is the consideration that in the two areas examined, if no co-ordinated planning strategy is evolved at the local scale in the near future, the necessity for any planning at all will disappear, along with the minority language concerned.

So it is that there is a pressing need for a greatly-increased number of linguistic micro-studies. The time is ripe for more geolinguists to borrow Edmont's bicycle and set off in search of first-hand information on local language shifts. Meanwhile, the majority will be obliged to return to the statistics already available with, perhaps, a fuller realisation of the complexity of the processes which they imply but usually leave unspecified. For the present study, the next stage is clear: a time

perspective should be added by a repetition of the detailed study of numeric and usage distributions in selected localities, and to coincide with the information made available by the language question for Wales in the census of 1981.

NOTES

1. This monumental work in thirty-five volumes, published in Paris between 1902 and 1910, is a typical, if more than usually splendid, example of "linguistic geography" as the term was most usually understood in Europe at the turn of the century - the mapping, at the national or regional scale, of patterns of language or dialect usage.

2. Lieberson, writing in 1967, turned his attention to the limitations of census data, making particular reference to Canada. He suggested some additional measures of language "strength" which might prove useful to those wishing to understand the changing fortunes of languages, including census questions on the sequence of language acquisition by bilingual people.

3. For Wales, the first census information on Welsh-speaking dates from the 1891 Report, though a breakdown of language ability on a parish basis was not presented until the early decades of this century, and there is a gap in the decennial sequence of census data in 1941.

4. A more rigorous definition and discussion of the term may be found in Fishman (1964).

5. Amongst the most helpful contexts have been those provided by W. H. Rees (1947), G. J. Lewis (1969) and W. T. R. Pryce (1975).

6. One of the best-known classifications at the national scale must be Bowen's (1959) two-fold core-fringe one. The cultural core ("Cymru Gymraeg") is the area where Welsh is dominant in terms of the proportion of people able to speak it, and other parts of Wales represent the dominantly non Welsh-speaking fringe. Without the benefit of census data, it is true, a similar two-fold classification has been recognised in Brittany. It comprises "Breizh Izel" (Basse Bretagne) and "Breizh Uhel" (Haute Bretagne). As the French translations suggest, this classification corresponds much more readily with the traditional, abstract concept of the cultural "pays" than with any clearly-defined territorial reality whose changing limits may be examined from decade to decade.

7. See, for example, Ervin-Tripp (1964) or Gumperz (1964).

8. The question on reading and writing ability was included for the first time in 1971, and its significance is discussed by Bowen and Carter (1975).

9. Amongst the best-known articles based on the analysis of census data at the national scale may be listed D. T. Williams (1937), J. G. Thomas (1956), E. Jones and I.L. Griffiths (1963) and the already-mentioned work of Bowen and Carter (1975).

10. In support of this, it is only necessary to compare the treatment of language change in the central Welsh Borderland by Rees (1947) and Lewis (1969), using similar data sources.

11. The gradual accumulation of data and methodologies now allow a further step to be taken: the prediction of future spatial progress of the "zone of collapse" towards the centre of the Welsh language area. See, for example C. H. Williams (1980), figure 2.

12. For details, see OPCS 1971 Census Information Papers 2 and 3 and Small Area Statistics (Ward Library) explanatory notes (Census Division, General Register Office, 1970.)

13. This is something of an understatement. The author's files contain evidence of the protracted and tedious negotiations necessary in order to obtain, first, a special tabulation of Welsh speakers by enumeration districts and, secondly, the necessary basis of enumeration district boundaries on which to plot them. The latter were supplied, expensively and inconveniently, on a series of more than thirty photocopied maps at a scale of 1 : 10,000, and the process took some eighteen months to complete.

14. A particularly crisp appraisal of the value of enumeration districts as a basis for research is provided by Robertson (1969).

15. See Gwegen (1975), p. 56.

16. The figure is provided by Roger Laouénan in the "Télégramme de Brest" (21st February, 1974) and quoted by Gwegen (p.55).

17. It may be considered surprising that a line drawn in the late nineteenth century to represent the spatial encroachment of French should still be an accurate indication of the edge of the Breton language area. This is partly a reflection of the fact that Sèbillot's border represents the eastern extent of the area where, although French may be spoken, Breton is the more usual language (Sébillot, 1886, p.9.). In the present context it represents, instead, the furthest eastward limits of the area where native Breton speaking was encountered.

18. The author's thanks go to Mrs. I. M. L. Robertson, of the Department of Town and Regional Planning, University of Glasgow, for supplying the floating circle program and advising on its application.

19. For details of this, see Nordbeck and Rystedt (1969).

20. Afendras (1970) provides an example of such an approach.

21. W. H. Rees (1947), pp. 114 and 257.

22. Sébillot's (1886) already-mentioned linguistic divide, portrayed cartographically, has an equivalent in A. J. Ellis's written description (1882) of the language border as it crossed the Welsh area. Many later authors, including Dauzat (1927) for Brittany and Rees (1947) for Wales, make effective use of the concept of the divide, which may still be held to have a useful function as a convenient generalisation of the extent of language areas.

23. J.A. Fishman, in Pride and Holmes (1972), p. 15.

24. As Gwegen (1975, chapter 10) points out forcefully, the slight attention given to Breton radio, and especially television, in terms of hours of transmission, greatly reduces the effectiveness of broadcasting as a potential means of arresting language shift, and correspondingly strengthens the influence of French, both in public places and within the home.

The author gratefully acknowledges the technical help given by Mrs. A. Millichap, Mrs. J. Perks and Mrs. M. Howitt, of the Department of Geography and Sociology, North Staffordshire Polytechnic, and offers his thanks to all respondents in the two study areas.

BIBLIOGRAPHY

AFENDRAS, E. (1970) "Diffusion processes in language prediction and planning". International Centre for Research on Bilingualism, Laval University, Quebec.

BOWEN, E.G. (1959) "Le Pays de Galles", Trans. I.B.G., 26, pp. 1 - 24.

BOWEN, E.G. & CARTER, H. (1974) "Preliminary observations on the distribution of the Welsh language at the 1971 Census". Geog. Journal, 140, pp. 432 - 440.

BOWEN, E.G. & CARTER H. (1975) "The distribution of the Welsh language in 1971 : an analysis". Geography, 60, pp.1 - 15.

CHADWICK, N. (ed.) (1963) "Celt and Saxon : studies in the early British border". Cambridge U.P.

DAUZAT, A. (1927) "Le déplacement des frontières linguistiques du Français de 1806 à nos jours". La Nature pp. 529 - 36.

ELLIS, A.J. (1882) "On the delimitation of the English and Welsh languages". Y Cymmrodor, 5, pp.173 - 208.

ERVIN-TRIPP, S.M. (1964) "An analysis of the interaction of language, topic and listener". American Anthropologist 66, pp. 86 - 102.

FISHMAN, J.A. (1964) "Language maintenance and language shift as fields of enquiry". Linguistics, 9, pp. 32 - 70.

FISHMAN, J.A. (1969) "The sociology of language", in GIGLIOLI (1972) (q. v.).

FISHMAN, J.A. (1971) "The Relationship between micro- and macro-sociolinguistics in the study of who speaks what language to whom and when", in PRIDE and HOLMES, 1972 (q. v.).

GIGLIOLI, P. P. (1972) "Lanuage and social context", Harmondsworth.

GILLIÉRON, J. & EDMONT, E. (1902 - 1910, 35 vols.) "Atlas linguistique de la France". Paris.

GUMPERZ, J. J. (1964) "Linguistic and social interaction in two communities". American Anthropologist, 66, pp.37 - 53.

GWEGEN, J. (1975) "La langue bretonne face à ses oppresseurs". Quimper.

HEMON, R. (1947) "La langue bretonne et ses combats". La Baule.

JACKSON, K. H. (1953) "Language and history in early Britain". Edinburgh U.P.

JONES, E. & GRIFFITHS, I.L. (1963) "A linguistic map of Wales, 1961". Geog. Journal, 129, pp. 192 - 96.

LIEBERSON, S. (1967) "Language questions in censuses", in Explorations in Sociolinguistics (Research Centre for the Language Sciences, Indiana Univ.), pp.134 - 51.

LEWIS, G.J. (1969) "A study of socio-geographic change in the Central Welsh Marchland since the mid-nineteenth century". Ph.D. Thesis, Univ. of Leicester.

MUSSET, R. (1937) "La Bretagne", Paris.

NORDBECK, S. & RYSTEDT, B. (1969) "Computer cartography : Range Map". B.I.I.9, pp157-66.

OFFICE OF POPULATION CENSUSES AND SURVEYS: Reports on Welsh Speaking, 1891 - 1971. H.M.S.O.

OFFICE OF POPULATION CENSUSES AND SURVEYS (1970 -): 1971 Census, Information Papers 1 - 5 and 1971 Census, Small Area Statistics (Ward Library) Explanatory Notes. O.P.C.S., Titchfield, Fareham, Hants.

PRIDE, J.B. & HOLMES, J. (eds.) (1972) "Sociolinguistics", Harmondsworth.

PRYCE, W.T.R. (1975) "Migration and the evolution of culture areas: cultural and linguistic frontiers in North-East Wales, 1750 and 1851". Trans. I.B.G. No. 65. pp.79 - 107.

REES, W. (1951) "An historical Atlas of Wales", London.

REES, W.H. (1947) "The vicissitudes of the Welsh language in the Marches of Wales, with special reference to its territorial distribution in modern times". Ph.D. Thesis, U.C. Wales, Aberystwyth.

ROBERTSON, I.M.L. (1969) "The census and research: ideals and realities". Trans. I.B.G. No. 48, pp.173 - 87.

SÉBILLOT, P. (1886) "La langue bretonne: limites et statistique". Revue d'ethnographie, 1886, pp 1 - 29.

THOMAS, J.G. (1956) "The geographical distribution of the Welsh language", Geog. Journal, 122, pp. 71 - 79.

TRUDGILL, P. (1975) "Linguistic geography and geographical linguistics", Progress in Geography, 7, pp. 227 - 52. London.

WILLIAMS, C.H. (1980) "Ethnic separatism in Western Europe", T.E.S.G., 71, pp.142 - 58.

WILLIAMS, D.T. (1936) "Linguistic divides in North Wales; a study in historical geography", Archaeologia Cambrensis, 91, pp.194 - 209.

WILLIAMS, D.T. (1937) "A linguistic map of Wales according to the 1931 Census, with some observations on its historical and geographical setting", Geog. Journal. 89, pp.146 - 51.

JOURNAL OF

MULTILINGUAL AND MULTICULTURAL DEVELOPMENT

The aim of this new academic journal is to improve communication amongst those throughout the world who share a common interest in the problems and welfare of differing language and cultural groups living within larger entities. The **Journal of Multilingual and Multicultural Development** will appear quarterly and Volume 1 will be published in 1980.

Some of the specific problems to be covered are mentioned below. This list is meant to be representative rather than exclusive, of course, and we welcome suggestions for inclusion. Ideally, each volume will contain a range of topics reflecting the extent and differing nature of the interests involved.

- ★ Difficulties arising from learning two (or more) languages from early childhood.
- ★ Benefits to be gained from learning two (or more) languages from early childhood.
- ★ Problems of education, e.g. should children from such groups go to "own language/culture schools" or should they integrate with the national education system?
- ★ How do such groups best maintain their own identity as well as integrating with the local population?
- ★ When should "second"-language teaching start?
- ★ Which should be regarded as the second language, that of the country of residence or that of the home, or should we consider the concept of "preferred language"?
- ★ Advantages for an adult of being bilingual or multilingual.
- ★ Should we seek to establish more homogeneous cultural groups in a multicultural society?
- ★ The enrichment of a community as a result of the interaction of cultures.

Papers should normally be between 2,500 and 6,000 words in length.

Publication Schedule. It is planned to keep the time between final acceptance of a paper and publication to no more than six months, provided authors' proofs are returned on schedule. To further speed up the dissemination of papers, most library subscribers will receive their copy by air (where appropriate) at no additional cost.

Work in Progress. In addition to full papers the Journal will also publish short reports (approximately 500 words) on work in progress. The average publication time for these reports will be three months (proofs will not be sent to authors).

Readers' Response. The Journal will accept letters from readers commenting on published papers or on items in **Work in Progress.** These letters should be kept to a maximum of 500 words.

Library subscription rates for 1980: US$30.00 (£14.00).
Individuals: US$14.00 (£5.50). Apply to Publisher's address below for full subscription details and notes on submission of manuscripts.

TIETO LTD
4 Bellevue Mansions · Bellevue Road · Clevedon · Avon BS21 7NU · England